Technical Publication Transfer

Using:

Northrop Corporation's Data

MIL-D-28000A (IGES)
MIL-M-28001A (SGML)
MIL-R-28002A (Raster)
MIL-D-28003A (CGM)

Quick Short Test Report

23 February 1993

Prepared for

Electronic Systems Center

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Quick Short Test Report

23 February 1993
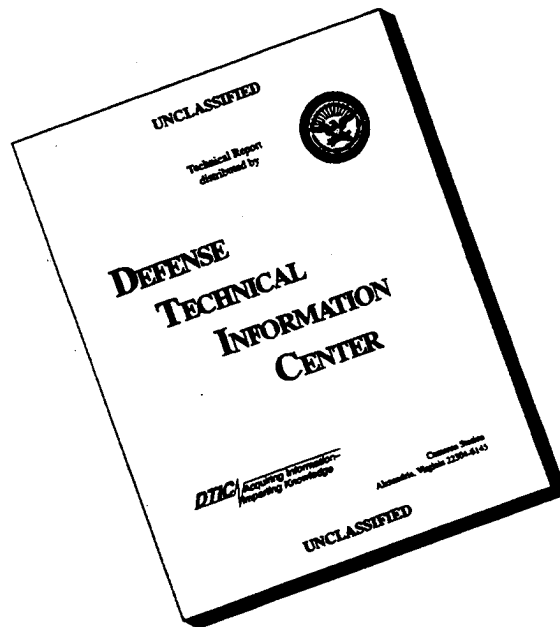

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Contents

1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-Cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze Northrop Corporation's interpretation and use of the CALS standards in transferring multiple volume technical publication data. Northrop used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on three 9-track magnetic tapes.

2. Test Parameters

Test Plan: AFCTB 93-013

Date of
Evaluation: 23 February 1993

Evaluators: George Elwood
Air Force CALS Test Bed
DET 2 HQ ESC/ENCP
Suite 300
4027 Colonel Glenn Hwy
Dayton OH 45431-1672

Data
Originator: J. P . Kent
Northrop Corporation
B-2 Division
L591/GK
8900 East Washington Blvd
Pico Rivera CA 90660
(310) 948-0624

Data
Description: Technical Manual Test
          1   Document Declaration file
          1   Document Type Definitions (DTD)
        101 Initial Graphics Exchange Specific tion
             (IGES) files
          1   Text file
          1   Raster file
          1   Computer Graphics Metafile (CGM) file
          1   Output Specification

Data
Source System:

          IGES

              HARDWARE
                  Unknown
              SOFTWARE
                  Unknown

Text/Standard Generalized Markup Language (SGML)

> **HARDWARE**
> > Unknown
>
> **SOFTWARE**
> > Unknown

Raster

> **HARDWARE**
> > Unknown
>
> **SOFTWARE**
> > Unknown

CGM

> **HARDWARE**
> > Unknown
>
> **SOFTWARE**
> > Unknown

Evaluation Tools Used:

> **MIL-STD-1840A (TAPE)**
> > SUN 3/280
> > > XSoft *CAPS/CALS v40.4*
> > > Texas Instruments (TI) *Tapetool v1.0.1*
> >
> > Cheetah Gold 486
> > > AFCTN *Tapetool v1.2.8 DOS*

> **MIL-D-28000 (IGES)**
> > Sun SparcStation 2
> > > ArborText *iges2draw*
> > > IGES Data Analysis (IDA) *IGESView v3.05*
> > > International TechneGroup Incorporated
> > > > (ITI) *IGES/Works v1.3*
> > >
> > > Rosetta Technologies *Preview v3.2*
> >
> > Cheetah Gold 486
> > > AUTODESK *AutoCAD 386 R12*
> > > Cadkey *Cadkey v5.02*
> > > IDA *IGES Parser/Verifier v92*
> > > AUTODESK Micro Engineering Solutions
> > > > (MES) *CheckMark v1.0*
> > >
> > > Wiz Worz *IGESDRAW*

MIL-M-28001 (SGML)

Cheetah Gold 486

Datalogics *ParserStation v3.36*
Exoterica *XGMLNormalizer v1.2e3.2*
Public Domain *sgmls v1.0*

MIL-R-28002 (Raster)

SUN SparcStation 2

ArborText *g42tiff*
AFCTN *validg4*
AFCTN *calstb.475*
IDA *IGESView v3.0*
Island Graphics *IslandPaint v3.0*

Cheetah

Inset Systems *HiJaak v2.1*
Inset Systems *HiJaak Window v1.0*
Corel *Ventura Publisher*

MIL-D-28003 (CGM)

SUN SparcStation 2

ArborText *cgm2draw*
Island Graphics *IslandDraw v3.0*

Cheetah Gold 486

Advance Technology Center
(ATC) *MetaVIEW R 1.12*
ATC *MetaCHECK R 2.05*
Software Publishing Corporation
(SPC) *Harvard Graphics v3.05*
Inset Systems *HiJaak v2.1*
Inset Systems *HiJaak v1.0 Windows*
Micrografx *Designer v3.1*
Micrografx *Charisma v2.1*
Corel *Ventura Publisher*

Standards
Tested:

MIL-STD-1840A
MIL-D-28000A
MIL-M-28001A
MIL-R-28002A
MIL-D-28003

3. 1840A Analysis

3.1 External Packaging

The tapes arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a box in accordance with ASTM D 3951. The exterior of the box was not marked with the magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3., although it did have a magnetic media warning label on the box.

The tapes were enclosed in a barrier bag material as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reels showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1. This information was enclosed with the packing list which was attached to the tapes.

3.2 Transmission Envelope

The three 9-track tapes received by the AFTCB contained MIL-STD-1840A files. The files were named per the standard conventions.

3.2.1 Tape Formats

The tapes were run through the AFCTN *Tapetool v1.2.8* utility. The three tape sets could not be read correctly. The program was able to read the first two tapes without a problem but did not ask for the third tape. This tape was then run as a separate tape. Because of the problems encountered *Tapetool* did not parse the files. The files from all three tapes were copied into another directory and then parsed using *Tapetool*.

Because of problems with reading the tape sets, the total number of errors is not known. 52 errors were reported for the first two tapes using *Tapetool*. The first reported error was use of reserved columns in the first tape block. This error is a bug in *Tapetool v1.2.8*. TI's version of *Tapetool* did not report this error.

VOL1ITDS01   CONTROLLER

*** ERROR (ANSI X3.27; 8.3.1.1) - Columns 12-24 are reserved
    for future standardization and must be spaces.

When tape two was read, all files were reported with an in-
correct Sequence number.   The problem appears to be with
Tapetool in that it could not handle a file breaking across
two tape volumes.   Part of file D001Q045 is contained on
both tape volumes one and two.   This is not an error but a
bug in *Tapetool*.   The TI version of *Tapetool* also reported
this error.

  File Identifier: D001Q045
  File Section Number: 0002
  File Sequence Number: 0046

*** ERROR (ANSI X3.27; 6.5.2) - Invalid file sequence number.
    File sequence numbers should increase by 1 for each file.
    Previous = 46; Expected = 47; Actual = 46

A similar error occurred between tape 2 and 3.   The writing
of the tape with its tape block was such, that neither
Tapetool v1.2.8 or the TI version could handle the last
tape.   The problem may have been the data file ended on tape
2, and tape 3 assumed that additional data was present.
When no data was read on tape 3 it caused the error.

  Actual Block Size Found = 2000 Bytes.

  Number of data blocks read = 32.

*** ERROR (ANSI X3.27; 6.3.2.1) - Tape Mark expected.

*** FATAL ERROR (ANSI X3.27; 6.3.2.1) - ANSI Label HDR1 missing.

Rewinding tape to load point...

The 3 tape sets were read using TI's *Tapetool*.   This program
asked for all three tapes but the system quit processing the

tape after the third tape was loaded. When the third tape was run as a separate unit only the first files was read and then the system quit processing the tape. *Tapetool* was looking for a tape mark which it did not find.

The XSoft *CAPS read1840A* utility does not handle multiple volume tapes.

All of the reported errors on these tapes were traced to a new bug discovered in the AFCTN *Tapetool*. Breaking of files across tape volume caused problems which *Tapetool* could not handle. These errors will be addressed when *Tapetools* is upgraded to support 1840B.

3.2.2 Declaration and Header Fields

Two errors were reported in the Raster data file header. A leading space was inserted in the Raster density record. The value inserted was 300 instead of 0300.

```
rdensty:  300
*** ERROR (MIL-STD-1840A; 5.1.4) - Value contains leading spaces.
*** ERROR (MIL-STD-1840A; 5.1.4.4) - Value for raster density was not a
    zero-filled four character number.
*** NOTE - The header record will be given the value 0300.
*** NOTE - Correction made in new Raster Header File.
```

The physical structure of the tapes do not meet the CALS MIL-STD-1840A requirements.

4. IGES Analysis

This three tape set contained 101 IGES files. Because of the number of files, 13 files were selected for detailed analysis. These 13 files were evaluated using IDA's *Parser* and *Verifier* set for CALS Class I. Of the files evaluated, no CALS Class I errors were reported. Similar IGES errors were noted on all of these files.

The first error is a starting point error with entity 104.

*** Entity type: 104

WARNING 2265: Start point off conic by 6.531045E-003 at D   403.

The second general error was with entity 112 where the segment of a polynomial was lost.

*** Entity type: 112

WARNING 2238: Polynomial segment (2) at D   639 is degenerate.

The AFCTB has several tools for viewing IGES files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement. All operations were performed using the default settings.

Two files were selected from the initial group for additional evaluations. These files were D001Q008 and D001Q018. They were converted using the AUTODESK's *AutoCAD R12 R5.1* IGES translator. This translator generated a log file which is included in the Appendix to this report. Many of the same basic IGES errors reported by IDA's *Parser/ Verifier* were also reported. The resulting files were displayed and printed using AUTODESK's *AutoCAD R12*. The hard copies appear to be the same as generated using the other softwares available in the AFCTB.

The files were converted using Cadkey's *ig2c* utility with no reported errors. The resulting files were read into Cadkey's *Cadkey*, displayed and printed. The only noted differences were in the shading of the arrows on both drawings. The cross hatching on the back of the seats in file Q018 was missing.

The files were read into MES's *CheckMark*. File D001Q018 could not be brought into the system due to memory problems on the computer. File Q008 displayed and printed correctly with the exception of missing arrowheads.

An attempt was made to convert the IGES files using Arbor-Text's *iges2draw* utility. This program ran without any reported errors. When the resulting files were read into Island Graphics' *IslandDraw* nothing was displayed.

The files were imported into IDA's *IGESView* without a reported error. The results were displayed and printed without a problem. The images appear to be correct.

The files were imported into ITI's *IGESWorks* without a reported error. The results were displayed and printed without a problem. The images appear to be correct.

The files were converted using Rosetta Technologies' *Prepare* with reported errors. These errors related to unsupported entities. The resulting files were read into *Preview*, displayed and printed. Arrowhead fill and cross hatching variations were noted.

Both files were read and printed using the Wiz Worx *IGESDRAW* without a problem. The resulting hard copies appear to be correct.

The IGES files meet the CALS MIL-D-28000A specification.

5. SGML Analysis

This three tape set technical publication transfer contained one DTD, one Text file and one Output Specification.

The DTD and Text files from this document were tested using Exoterica's *XGMLNormalizer* parser. This utility reported no errors with either the DTD or Text file.

The DTD and Text files from this document were parsed using Datalogics's *ParseStation* with no reported errors.

The DTD and Text files were parsed using Public Domain's *sgmls* with no reported errors.

The DTD and Text files meet the CALS MIL-M-28001A specification.

6. Raster Analysis

This three tape set contained only one (1) Raster file. The
file was evaluated using the AFCTN *validg4* utility which re-
ported it as not meeting the CALS MIL-R-28002A specifica-
tion. The log file is shown below. Using an octal dump of
the file, it was noted that the required EOF coding was not
found.

```
 density       = 300
 path length = 312
 scan lines   = 500
 bit format   = MSB

error, scan length exceeds pel count
s=502 a0=313 bstop=312 pos=11822

file = r106.cal
```

When an attempt to read the file into the AFCTN *calstb.475*
viewer, a core dump was generated.

The AFCTB has several tools for viewing Raster files. These
tools are not used to generate a pass/fail but to report how
commercially available software can handle the files. Many
of these products are used in the development of technical
publications and are good indicators of usability. The use
of these products is not an endorsement. All operations
were performed using the default settings.

The file was converted without a reported error using Inset
Systems' *HiJaak* to an IMG format. This file was then im-
ported into Corel's *Ventura Publisher* and printed. The file
was unusable with lines displayed. See the Appendix.

The file was converted using Rosetta Technologies' *Prepare*
without a reported error. The resulting file was read into
Preview, displayed and printed. The image was unusable with
only lines showing. See the Appendix.

The file was converted using ArborText's *g42tiff* utility
without a reported error. The resulting file was read into

Island Graphics' *IslandDraw*, displayed and printed. The image was unusable with only lines showing. See the Appendix.

The file was read into Inset Systems' *HiJaak for Windows* without a reported problem. The displayed image was unusable. See the Appendix for hard copy.

The included Raster file does not meet the CALS MIL-R-28002A specification.

7. CGM Analysis

This three tape set contained only one (1) CGM file. The file was evaluated using ATC's *MetaCheck* with CALS options. This utility reported that the file meets the CALS MIL-D-28003 specification.

The file was also evaluated using the AFCTN beta *validcgm* utility which reported two illegal entities.

The AFCTB has several tools for viewing CGM files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement. All operations were performed using the default settings.

An attempt to convert the file using Inset Systems' *HiJaak* and *HiJaak for Windows* was made. Both of these utilities would not convert the file and reported critical errors.

The file was read using ATC's *MetaVIEW* with a reported error. The displayed image appeared to be complete but font problems were noted.

The file was converted using ArborText's *cgm2draw* utility without a reported error. The resulting file was read into Island Graphics' *IslandDraw* and displayed. The image appeared to be complete and usable with the exception of the background color, which made printing the file fair. The white graphics would not permit a white background. Using a

colored background, it was possible to print the file. The text was visible but because of the thin font, it was lost on the page.

The file was imported directly into Island Graphics' *Island-Draw* without a reported problem. The resulting image was drawn on the top of the page and was unusable.

An attempt to read the file using the Micrografx *Designer* and *Charisma* were unsuccessful with reported errors.

According to Michael Harrison of Micrografx, "Micrografx is aware of the problems associated with reading these files and is working on a solution to be implimented in a future release of our products."

The file was imported into SPC's *Harvard Graphics 3.05* with several reported errors. The image displayed on the screen was unusable, consisting of a few lines and some over laid text.

An attempt to directly import the CGM file into Corel's *Ventura Publisher* generated an error indicating the file was bad.

Although the file was reported as meeting the specification, some of the commercial tools available in the AFCTB were unable to display the image correctly.

8. Conclusions and Recommendations

In summary, the tape from Northrop Corporation was basically correct. The tape could not be read properly using the AFCTN *Tapetool* software because of newly discovered bugs in the software. TI's version of *Tapetool* also had problems with the third tape in the set. The header record for the Raster file was incorrect. The physical structure of the tape did not meet the CALS MIL-STD-1840A requirements.

The IGES files meet the CALS MIL-D-28000A Class I specification.

The DTD and Text files meet the MIL-M-28001A specification.

The Raster file was not valid. It was flagged as bad by the AFCTN *validg4* and was shown to be bad with several software programs. The Raster file does not meet the CALS MIL-R-28002A specification.

The CGM file was reported as meeting the CALS MIL-D-28003 specification. One of the software applications correctly displayed the file. The other software programs could not display the image.

The tape submitted by Northrop Corporation does not meet the CALS MIL-STD-1840A requirements.

9. Appendix A - Tapetool Report Logs

9.1 Tape Catalog

Air Force CALS Test Network Catalog Evaluation - Version 1.2; Release Number 8

Standards referenced:
  MIL-STD-1840A (1987) - Automated Interchange of Technical Information
  MIL-R-28003 (1988) - Digital Representation For Communication Of
                       Illustration Data; CGM Application Profile
  ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes
                      for Information Interchange
  ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Wed Feb 24 08:04:46 1993

MIL-STD-1840A File Catalog

File Set Directory: C:\Tapetool\SET003

Page: 1

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001	Document Declaration	D/00256	02048/000000	Extracted
D001T001	Text	D/00256	02048/000000	Extracted
D001G002	DTD	D/00256	02048/000000	Extracted
D001H003	Output Specification	D/00256	02048/000000	Extracted
D001Q004	IGES	F/00080	02000/000000	Extracted
D001Q005	IGES	F/00080	02000/000000	Extracted
D001Q006	IGES	F/00080	02000/000000	Extracted

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

D001Q102	IGES	F/00080	02000/000000	Extracted
D001Q103	IGES	F/00080	02000/000000	Extracted
D001Q104	IGES	F/00080	02000/000000	Extracted
D001C105	CGM	F/00080	00800/000000	Extracted
D001R106	Raster	F/00128	02048/000000	Extracted

Catalog Process terminated normally.

9.2 Tape Evaluation Log

Air Force CALS Test Network Tape Evaluation - Version 1.2; Release Number 8
  Standards referenced:
    ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes
                    for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

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ANSI Tape Import Log

Rewinding tape to load point...

VOL1ITDS01   CONTROLLER   4

  Label Identifier: VOL1
  Volume Identifier: ITDS01
  Volume Accessibility:
  Owner Identifier:
  Label Standard Version: 4

*** ERROR (ANSI X3.27; 8.3.1.1) - Columns 12-24 are reserved
    for future standardization and must be spaces.

HDR1D001   ITDS0100010001000100 93045 93045 000000   CONTROLLER

  Label Identifier: HDR1
  File Identifier: D001
  File Set Identifier: ITDS01
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date: 93045
  Expiration Date: 93045
  File Accessibility:
  Block Count: 000000
  Implementation Identifier: CONTROLLER

HDR2D0204800260   00

  Label Identifier: HDR2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260

Offset Length: 00

*********** Tape Mark ***************

  Actual Block Size Found = 2048 Bytes.

  Number of data blocks read = 1.

*********** Tape Mark ***************

EOF1D001   ITDS0100010001000100 93045 93045 000001   CONTROLLER

  Label Identifier: EOF1
  File Identifier: D001
  File Set Identifier: ITDS01
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date: 93045
  Expiration Date: 93045
  File Accessibility:
  Block Count: 000001
  Implementation Identifier: CONTROLLER

EOF2D0204800260   00

  Label Identifier: EOF2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

*********** Tape Mark ***************

HDR1D001T001   ITDS0100010002000100 93045 93045 000000   CONTROLLER

  Label Identifier: HDR1
  File Identifier: D001T001
  File Set Identifier: ITDS01
  File Section Number: 0001
  File Sequence Number: 0002
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date: 93045
  Expiration Date: 93045
  File Accessibility:

Block Count: 000000
Implementation Identifier: CONTROLLER

HDR2D0204800260   00

  Label Identifier: HDR2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

*********** Tape Mark ***************

  Actual Block Size Found = 2048 Bytes.

  Number of data blocks read = 63.

*********** Tape Mark ***************

EOF1D001T001   ITDS0100010002000100 93045 93045 000063   CONTROLLER

  Label Identifier: EOF1
  File Identifier: D001T001
  File Set Identifier: ITDS01
  File Section Number: 0001
  File Sequence Number: 0002
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date: 93045
  Expiration Date: 93045
  File Accessibility:
  Block Count: 000063
  Implementation Identifier: CONTROLLER

EOF2D0204800260   00

  Label Identifier: EOF2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

*********** Tape Mark ***************

HDR1D001G002   ITDS0100010003000100 93045 93045 000000   CONTROLLER

  Label Identifier: HDR1

File Identifier: D001G002
File Set Identifier: ITDS01
File Section Number: 0001
File Sequence Number: 0003
Generation Number: 0001
Generation Version Number: 00
Creation Date: 93045
Expiration Date: 93045
File Accessibility:
Block Count: 000000
Implementation Identifier: CONTROLLER

HDR2D0204800260   00

Label Identifier: HDR2
Recording Format: D
Block Length: 02048
Record Length: 00260
Offset Length: 00

************ Tape Mark ***************

Actual Block Size Found = 2048 Bytes.

Number of data blocks read = 14.

************ Tape Mark ***************

EOF1D001G002   ITDS0100010003000100 93045 93045 000014   CONTROLLER

Label Identifier: EOF1
File Identifier: D001G002
File Set Identifier: ITDS01
File Section Number: 0001
File Sequence Number: 0003
Generation Number: 0001
Generation Version Number: 00
Creation Date: 93045
Expiration Date: 93045
File Accessibility:
Block Count: 000014
Implementation Identifier: CONTROLLER

EOF2D0204800260   00

Label Identifier: EOF2
Recording Format: D

Block Length: 02048
Record Length: 00260
Offset Length: 00

*********** Tape Mark ***************

HDR1D001H003   ITDS0100010004000100 93045 93045 000000   CONTROLLER

  Label Identifier: HDR1
  File Identifier: D001H003
  File Set Identifier: ITDS01
  File Section Number: 0001
  File Sequence Number: 0004
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date: 93045
  Expiration Date: 93045
  File Accessibility:
  Block Count: 000000
  Implementation Identifier: CONTROLLER

HDR2D0204800260   00

  Label Identifier: HDR2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

*********** Tape Mark ***************

  Actual Block Size Found = 2048 Bytes.

  Number of data blocks read = 88.

*********** Tape Mark ***************

EOF1D001H003   ITDS0100010004000100 93045 93045 000088   CONTROLLER

  Label Identifier: EOF1
  File Identifier: D001H003
  File Set Identifier: ITDS01
  File Section Number: 0001
  File Sequence Number: 0004
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date: 93045

Expiration Date: 93045
File Accessibility:
Block Count: 000088
Implementation Identifier: CONTROLLER

EOF2D0204800260   00

  Label Identifier: EOF2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

*********** Tape Mark **************

HDR1D001Q004   ITDS0100010005000100 93045 93045 000000   CONTROLLER

  Label Identifier: HDR1
  File Identifier: D001Q004
  File Set Identifier: ITDS01
  File Section Number: 0001
  File Sequence Number: 0005
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date: 93045
  Expiration Date: 93045
  File Accessibility:
  Block Count: 000000
  Implementation Identifier: CONTROLLER

HDR2F0200000080   00

  Label Identifier: HDR2
  Recording Format: F
  Block Length: 02000
  Record Length: 00080
  Offset Length: 00

*********** Tape Mark **************

  Actual Block Size Found = 2000 Bytes.

  Number of data blocks read = 508.

*********** Tape Mark **************

EOF1D001Q004   ITDS0100010005000100 93045 93045 000508   CONTROLLER

    Label Identifier: EOF1
    File Identifier: D001Q004
    File Set Identifier: ITDS01
    File Section Number: 0001
    File Sequence Number: 0005
    Generation Number: 0001
    Generation Version Number: 00
    Creation Date: 93045
    Expiration Date: 93045
    File Accessibility:
    Block Count: 000508
    Implementation Identifier: CONTROLLER

EOF2F0200000080   00

    Label Identifier: EOF2
    Recording Format: F
    Block Length: 02000
    Record Length: 00080
    Offset Length: 00

*********** Tape Mark ***************

                        <<<<< *PART OF LOG FILE REMOVED HERE* >>>>>

*********** Tape Mark ***************

*********** Tape Mark ***************

############ End of Volume ITDS01 ##############

Rewinding tape to load point...

Rewinding tape to load point...

VOL1ITDS02   CONTROLLER   4

    Label Identifier: VOL1
    Volume Identifier: ITDS02
    Volume Accessibility:
    Owner Identifier:
    Label Standard Version: 4

*** ERROR (ANSI X3.27; 8.3.1.1) - Columns 12-24 are reserved
    for future standardization and must be spaces.

HDR1D001Q045   ITDS0200020046000100 93045 93045 000000   CONTROLLER

  Label Identifier: HDR1
  File Identifier: D001Q045
  File Set Identifier: ITDS02
  File Section Number: 0002
  File Sequence Number: 0046
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date: 93045
  Expiration Date: 93045
  File Accessibility:
  Block Count: 000000
  Implementation Identifier: CONTROLLER

*** ERROR (ANSI X3.27; 6.5.2) - Invalid file sequence number.
    File sequence numbers should increase by 1 for each file.
    Previous = 46; Expected = 47; Actual = 46

HDR2F0200000080   00

  Label Identifier: HDR2
  Recording Format: F
  Block Length: 02000
  Record Length: 00080
  Offset Length: 00

*********** Tape Mark ***************

  Actual Block Size Found = 2000 Bytes.

  Number of data blocks read = 60.

*********** Tape Mark ***************

EOF1D001Q045   ITDS0200020046000100 93045 93045 000060   CONTROLLER

  Label Identifier: EOF1
  File Identifier: D001Q045
  File Set Identifier: ITDS02
  File Section Number: 0002
  File Sequence Number: 0046
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date: 93045
  Expiration Date: 93045
  File Accessibility:

```
  Block Count: 000060
  Implementation Identifier:    CONTROLLER

EOF2F0200000080                                          00

  Label Identifier: EOF2
  Recording Format: F
  Block Length: 02000
  Record Length: 00080
  Offset Length: 00
```

*********** Tape Mark ***************

<<<<< *PART OF LOG FILE REMOVED HERE* >>>>>

*********** Tape Mark ***************

```
HDR1D001Q092          ITDS0200010093000100 93045 93045 000000   CONTROLLER

  Label Identifier: HDR1
  File Identifier: D001Q092
  File Set Identifier: ITDS02
  File Section Number: 0001
  File Sequence Number: 0093
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date:   93045
  Expiration Date:   93045
  File Accessibility:
  Block Count: 000000
  Implementation Identifier:    CONTROLLER
```

*** ERROR (ANSI X3.27; 6.5.2) - Invalid file sequence number.
    File sequence numbers should increase by 1 for each file.
    Previous = 93; Expected = 94; Actual = 93

```
HDR2F0200000080                                          00

  Label Identifier: HDR2
  Recording Format: F
  Block Length: 02000
  Record Length: 00080
  Offset Length: 00
```

*********** Tape Mark ***************

  Actual Block Size Found = 2000 Bytes.

Number of data blocks read = 32.

*** ERROR (ANSI X3.27; 6.3.2.1) - Tape Mark expected.

*** FATAL ERROR (ANSI X3.27; 6.3.2.1) - ANSI Label HDR1 missing.

Rewinding tape to load point...

Tape Import Process terminated with 52 error(s), 0 warning(s),
and 0 note(s).

9.3 Tape File Set Validation Log

Air Force CALS Test Network File Set Evaluation - Version 1.2; Release Number 8
  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information
    MIL-R-28002 (1989) - Raster Graphics Representation In Binary
                         Format, Requirements For

Wed Feb 24 08:04:46 1993

MIL-STD-1840A File Set Evaluation Log

File Set: SET003

Found file: D001
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: John P. Kent, ITDS Chief Engineer, Northrop Corporation, B-2 Division, L591/GK
srcdocid: 1B-2A-2-95JG-10-1
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19920819
dstsys: Jeff Fisher, Integration Manager, USAF CALS Test Bed, HQ AFMC (I)/ENCT, Techne
dstdocid: 1B-2A-2-95JG-10-1
dstrelid: NONE
dtetrn: 19930214
dlvacc: NONE
filcnt: T1, H1, G1, C1, Q101, R1
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: JOB GUIDE
docttl: CREW ESCAPE AND SAFETY EJECTION SEATS

Found file: D001T001
Extracting Text Header Records...
Evaluating Text Header Records...

srcdocid: 1B-2A-2-95JG-10-1
dstdocid: 1B-2A-2-95JG-10-1
txtfilid: W
doccls: UNCLASSIFIED
notes: NONE

Saving Text Header File: D001T001.HDR

Saving Text Data File: D001T001.TXT

Found file: D001G002
Extracting DTD Header Records...
Evaluating DTD Header Records...

srcdocid: 1B-2A-2-95JG-10-1
dstdocid: 1B-2A-2-95JG-10-1
notes: NONE

Saving DTD Header File: D001G002.HDR
Saving DTD Data File: D001G002.DTD

Found file: D001H003
Extracting Output Specification Header Records...
Evaluating Output Specification Header Records...

srcdocid: 1B-2A-2-95JG-10-1
dstdocid: 1B-2A-2-95JG-10-1
notes: NONE

Saving Output Specification Header File: D001H003.HDR
Saving Output Specification Data File: D001H003.OS

Found file: D001Q004
Extracting IGES Header Records...
Evaluating IGES Header Records...

srcdocid: 1B-2A-2-95JG-10-1
dstdocid: 1B-2A-2-95JG-10-1
txtfilid: W
figid: NONE
srcgph: B2AJG9510-0005
doccls: UNCLASSIFIED
notes: NONE

Saving IGES Header File: D001Q004.HDR
Saving IGES Data File: D001Q004.IGS

<<<<< *PART OF LOG FILE REMOVED HERE* >>>>>

Found file: D001Q104
Extracting IGES Header Records...
Evaluating IGES Header Records...

srcdocid: 1B-2A-2-95JG-10-1
dstdocid: 1B-2A-2-95JG-10-1

txtfilid: W
figid: NONE
srcgph: B2AJG9512-0014
doccls: UNCLASSIFIED
notes: NONE

Saving IGES Header File: D001Q104.HDR
Saving IGES Data File: D001Q104.IGS

Found file: D001C105
Extracting CGM Header Records...
Evaluating CGM Header Records...

srcdocid: 1B-2A-2-95JG-10-1
dstdocid: 1B-2A-2-95JG-10-1
txtfilid: W
figid: NONE
srcgph: B2AJG9510-0009
doccls: UNCLASSIFIED

Saving CGM Header File: D001C105.HDR
Saving CGM Data File: D001C105.CGM

Found file: D001R106
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: 1B-2A-2-95JG-10-1
dstdocid: 1B-2A-2-95JG-10-1
txtfilid: W
figid: NONE
srcgph: B2AJG9510-0017A
doccls: UNCLASSIFIED
rtype: 1
rorient: 000,270
rpelcnt: 000312,000500
rdensty: 300
*** ERROR (MIL-STD-1840A; 5.1.4) - Value contains leading spaces.
*** ERROR (MIL-STD-1840A; 5.1.4.4) - Value for raster density was not a
    zero-filled four character number.
*** NOTE - The header record will be given the value 0300.
*** NOTE - Correction made in new Raster Header File.
notes: NONE

2 error(s), 0 warning(s), and 2 note(s) were encountered
 in Raster File D001R106.
Saving Raster Header File: D001R106.HDR

Saving Raster Data File: D001R106.GR4

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

A total of 2 error(s), 0 warning(s), and 2 note(s) were
encountered in Document D001.

A grand total of 2 error(s), 0 warning(s), and 2 note(s) were
encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.

10.   Appendix B - Detailed IGES Analysis

10.1   File D001Q008

10.1.1   Parser/Verifier Log

```
            *** IGES DATA FILE ANALYSIS ***
            ***         MARCH 1992        ***
            ***   IGES Data Analysis      ***
            ***      (708) 449-3430       ***


 Input file is i:\9313\d001q008.igs


 Checking conformance to CALS Class I (MIL-D-28000A 2/10/92)


 Today is February 25, 1993  7:42 AM


*** File and Product Name Information ***

    File name from sender    = '0010.gef.igs'
    File creation Date.Time   = '930213.055757'
    Model change Date.Time    = ''
    Author                    = 'NORTHROP B2 ITDS CTB'
    Department                = ''
    Product name from sender = '0010.gef.igs'
    Destination product name = '0010.gef.igs'


*** Parameter Delimiters ***

    Delimiter  = ','
    Terminator = ';'


*** Originating System Data ***

    System ID            = 'ITDS CONVERTER: GEF_IGES'
    Preprocessor version = '1.0'
    Specification version = 6 (IGES 4.0)


*** Precision levels ***
    Integer bits =    32
    Floating point   -  Exponent =    38  Mantissa =    6
    Double precision - Exponent =   308  Mantissa =   15


*** Global Model Data ***
```

```
Model scale             =  1.0000E+000
Unit flag               =  1
Units                   =  'IN'
Line weights            =  2
Maximum line thickness  =  1.260000E-002
Minimum line thickness  =  6.300000E-003
Granularity             =  1.000000E-003
Maximum coordinate      =  7.243750E+000
```

Drafting standard applicable to original data is not specified.

*** Status Flag Summary ***

```
Blank status: Visible                      3155
              Blanked                         0


Independence: Independent                  3139
              Physically Subordinate         12
              Logically Subordinate           4
              Totally Subordinate             0


Entity use:   Geometry                     3113
              Annotation                     42
              Definition                      0
              Other                           0
              Logical/Positional              0
              2D parametric                   0
              Not Specified                   0


Hierarchy:    Structure DE applies            0
              Subordinate DE applies       3155
              Hierarchy property applies      0
              Not Specified                   0
```

*** Entity Occurrence Counts ***

Entity	Form	Level	Count	Type
100	0	0	67	Circular arc
104	1	0	703	Conic arc - ellipse
106	63	0	12	Simple closed planar curve
110	0	0	1443	Line
112	0	0	182	Parametric spline curve
124	0	0	703	Transformation matrix
212	0	0	28	General note

230	0	0	12	Sectioned area (Standard Crosshatching)
404	0	0	1	Drawing
406	16	0	1	Property - Drawing size
406	18	0	2	Property - Intercharacter spacing
410	0	0	1	View - Orthographic parallel

*** Entity Count by Level ***

Level	Count
0	3155

*** Labeling Information ***

0% of the entities are labeled.

Unlabeled   3155

*** Line Fonts Used in Data ***

100	102	104	106	108	110	112	114	
-	-	-	-	-	-	-	-	Undefined
66	-	699	12	-	1427	174	-	Solid
1	-	-	-	-	8	8	-	Dashed
-	-	4	-	-	7	-	-	Phantom
-	-	-	-	-	1	-	-	Center-line
-	-	-	-	-	-	-	-	Dotted
-	-	-	-	-	-	-	-	User defined

116	118	120	122	124	125	126	128	
-	-	-	-	703	-	-	-	Undefined
-	-	-	-	-	-	-	-	Solid
-	-	-	-	-	-	-	-	Dashed
-	-	-	-	-	-	-	-	Phantom
-	-	-	-	-	-	-	-	Center-line
-	-	-	-	-	-	-	-	Dotted
-	-	-	-	-	-	-	-	User defined

130	132	134	136	138	140	142	144	
-	-	-	-	-	-	-	-	Undefined
-	-	-	-	-	-	-	-	Solid
-	-	-	-	-	-	-	-	Dashed
-	-	-	-	-	-	-	-	Phantom
-	-	-	-	-	-	-	-	Center-line

```
-    -    -    -    -    -    -    -    Dotted
-    -    -    -    -    -    -    -    User defined
```

*** Line Widths Used in Data ***

Weight	Count	Width
Defaulted	3154	(0.0063)
1	1	(0.0063)

*** Colors Used in Data ***

Defaulted	708
Cyan	62
White	2385

```
*******************************
******   ENTITY ANALYSIS   ******
*******************************
```

*** Entity type: 100

*** Entity type: 104

WARNING 2265: Start point off conic by 1.446245E-003 at D   2635.
WARNING 2039: End point off conic by 1.446245E-003 at D   2635.

<<<<< *PART OF LOG REMOVED HERE* >>>>>

*** Entity type: 106

*** Entity type: 110

  --   1443 lines averaging 6.813930E-002 units --

*** Entity type: 112

WARNING 2238: Polynomial segment (3) at D   5379 is degenerate.
WARNING 2238: Polynomial segment (8) at D   5379 is degenerate.
WARNING 2238: Messages regarding degenerate polynomial segment suppressed.

*** Entity type: 124

703 transformation matrices, 703 non-zero translations.
NOTE   2341: 703 matrices contain translation information.

*** Entity type: 212

    28 text strings in data file.
    Average text aspect ratio in file is 0.9799966.
    Minimum text aspect ratio in file is 0.9464286.
    Maximum text aspect ratio in file is 0.9940477.

    FONTS USED IN FILE

    FONT   COUNT   NAME

      1   28   Default ASCII Style

 *** Entity type: 230

 *** Entity type: 404

Drawing at D   5 contains 1 views.
Drawing at D   5 contains 0 annotation entities.

 *** Entity type: 406

 *** Entity type: 410

  Scale of view at D   1 is 1.000000E+000.
Orthographic View entity at D   1 has 0 clipping planes specified.
   XMIN = Not Set   XMAX = Not Set
   YMIN = Not Set   YMAX = Not Set
   ZMIN = Not Set   ZMAX = Not Set

 *** Message Summary ***

2015: 38 Mathematically incorrect definitions.

 *** Error Summary ***

    0 fatal errors
    0 severe errors
    0 errors
   38 warnings
    0 cautions
    0 nitpicks
    1 notes

 *** End of Analysis of i:\9313\d001q008.igs ***

10.1.2   AutoCAD R5.1 IGES Translator Log

```
Title: IGESIN Journal (v5.1 Nov 05 1992)
=========================================================================
File: I:/9313/D001Q008.xli
Date: Wed, Feb 24, 1993
Time: 16:07:27
=========================================================================

Translator S/N:    117-10075750
Translating from IGES file:         I:/9313/D001Q008.IGS
to AutoCAD Drawing:     I:\9313\D001Q008.dwg


=========================================================================

Options obtained from:   default settings
Curves Approximated to Tolerance of          0.01
Surfaces Approximated to Tolerance of         0.01

Text Font/Style mapping:
IGES Text font          Style Name          ACAD Font
0                       SYMBOL0          iges0
1                       STANDARD           txt
2                        LEROY             txt
3                        FUTURA            txt
6                        COMP80            txt
12                      GOTHICE         gothice
13                      GOTHICI         gothici
14                       ROMANS          romans
17                       ROMANT          romant
18                       ROMAND          romand
19                         OCR             txt
1001                     SYMBOL1        iges1001
1002                     SYMBOL2        iges1002
1003                     SYMBOL3        iges1003
2001                      KANJI          bigfont

IGES Linefont/AutoCAD Linetype mapping
IGES Line Font          AutoCAD linetype          Shape file
0                       BYLAYER
1                       CONTINUOUS
2                        DASHED                   acad.lin
3                        PHANTOM                  acad.lin
4                        CENTER                   acad.lin
5                          DOT                    acad.lin
```

_____

==

Parse phase

*** Warning (IEVM_RADII_NOT_EQUAL_100) ***
(DE 2623, TF 100:0) Entity's radii are not equal. Start point radius:
1.2189629e-002. Terminate point radius: 1.2226560e-002.

Action taken: Start point moved 1.8465589e-005 units from -3.3985350e+000,
5.4103517e+000 to -3.3985166e+000, 5.4103528e+000.   Terminate point moved
1.8465589e-005 units from -3.4035339e+000, 5.4195805e+000 to -3.4035448e+000,
5.4195655e+000.

            <<<<< *PART OF LOG REMOVED HERE* >>>>>

*** Warning (IEVM_BAD_VECTOR_124) ***(DE 2633, TF 124:0) Entity has a column
which is not a unit vector.

Action taken: Unitized all vectors.

            <<<<< *PART OF LOG FILE REMOVED HERE* >>>>>

*** Warning (IEVM_BAD_CONTINUITY_112) ***
(DE 5365, TF 112:0) Entity's Degree of Continuity, 0, is incorrectly
specified.
Degree of Continuity calculated to be 2.

Action taken: Degree of Continuity set to 2.

            <<<<< *PART OF LOG REMOVED HERE* >>>>>

*** Warning (IEVM_SPLINE_DEGEN_112) ***
(DE 5391, TF 112:0) Entity is degenerate.

            <<<<< *PART OF LOG REMOVED HERE* >>>>>

*** Warning (IEVM_RADII_NOT_EQUAL_100) ***
(DE 5595, TF 100:0) Entity's radii are not equal. Start point radius:
4.0599481e-002. Terminate point radius: 4.0594809e-002.

Action taken: Start point moved 2.3359374e-006 units from -1.0314207e+000,
2.1703737e+000 to -1.0314207e+000, 2.1703760e+000.   Terminate point moved
2.3359374e-006 units from -1.0256529e+000, 2.1707582e+000 to -1.0256526e+000,
2.1707559e+000.

            <<<<< *PART OF LOG REMOVED HERE* >>>>>

_____

===

Start Section:

CONFORMANCE:
 MIL-D-28000 Amendment1, 20 December 1988
 Technical Illustration Class I Subset

ILLUSTRATION IDENTIFIER:
 0010.gef.igs

Global Section:

Parameter Delimiter:	,
Record Delimiter:	;
Sending Product ID:	0010.gef.igs
File Name:	0010.gef.igs
System ID:	ITDS CONVERTER: GEF_IGES
Preprocessor Version:	1.0
Size of Integer:	32
Sgl. Precision Mag:	38
Sgl. Precision Sig:	6
Dbl. Precision Mag:	308
Dbl. Precision Sig:	15
Receiving Product ID:	0010.gef.igs
Model Space Scale:	1.000000
Unit Flag:	1
Unit String:	IN
# of Line Weigh2♦:	2
Maximum Line Width:	0.012600
Creation Date:	02/13/93 05:57:57
Minimum Resolution:	0.001000
Maximum Coordinate:	7.243750
Author:	NORTHROP B2 ITDS CTB
Organization:	
IGES Version Number:	6
Drafting Standard:	0

Entity Summary:

Type	Form	Description	Count
100	0	Circular Arc	67
104	1	Ellipse	703
106	63	Simple Closed Planar Curve	12
110	0	Line	1443

112	0	Parametric Spline Curve	182
124	0	Transformation Matrix	703
212	0	General Note (Simple)	28
230	0	Section Area (Standard Fill)	12
404	0	Drawing (form 0)	1
406	16	Property (Drawing Size)	1
406	18	Property (Int-character Spacing)	2
410	0	View	1

Total   3155

==

Translation phase

Drawing Entity (404 Form 0) at DE 5, with
  name = ,
  size = 3.937500, 6.300000,
  units = IN,
was processed in the AutoCAD drawing file: I:\9313\D001Q008.dwg

*** Warning (ACAD_NEW_VIEW_VOLUME_GENERATED) ***
(DE: 1 TF: 410:0)
A new view volume has been generated for the view with:
XMIN (-4.633706), XMAX (0.397658),
YMIN (0.454057), YMAX (7.712295),
ZMIN (-0.691567), ZMAX (0.691567).

IGES Entity Summary

Type	Form	Description	Count	Processed	Errors
100	0	Circular Arc	67	67	0
104	1	Ellipse	703	703	0
106	63	Simple Closed Planar Curve	14	14	0
110	0	Line	1443	1443	0
112	0	Parametric Spline Curve	182	178	4
212	0	General Note (Simple)	28	28	0
230	0	Section Area (Standard Fill)	12	12	0
404	0	Drawing (form 0)	1	1	0
406	16	Property (Drawing Size)	1	1	0
410	0	View	1	1	0
Totals			2452	2448	4

Unsupported IGES Entity Summary

Type	Form	Description	Count
406	18	Property (Int-character Spacing)	2
Total			2

AutoCAD Entity Summary

Entity	Created	Errors
LINE	2051	0
CIRCLE	1	0
TEXT	28	0
ARC	66	0
SOLID	10	0
INSERT	2	0
POLYLINE	291	0
BLOCK	2	0
Totals		
2451	0	

==
Error Summary:

The following message was issued 64 time(s)
Entity's radii are not equal. Start point radius: %.7e. Terminate point radius: %.7e.

The following message was issued 700 time(s)
Entity's start point not on the conic. Value found was %.7e, %.7e.

The following message was issued 702 time(s)
Entity's End Point not on the conic. Value found was %.7e, %.7e.

The following message was issued 128 time(s)
Entity's Degree of Continuity, %d, is incorrectly specified. Degree of Continuity calculated to be %d.

The following message was issued 4 time(s)
Entity is degenerate.

The following message was issued 624 time(s)
Entity has a column which is not a unit vector.

The following message was issued 1 time(s)
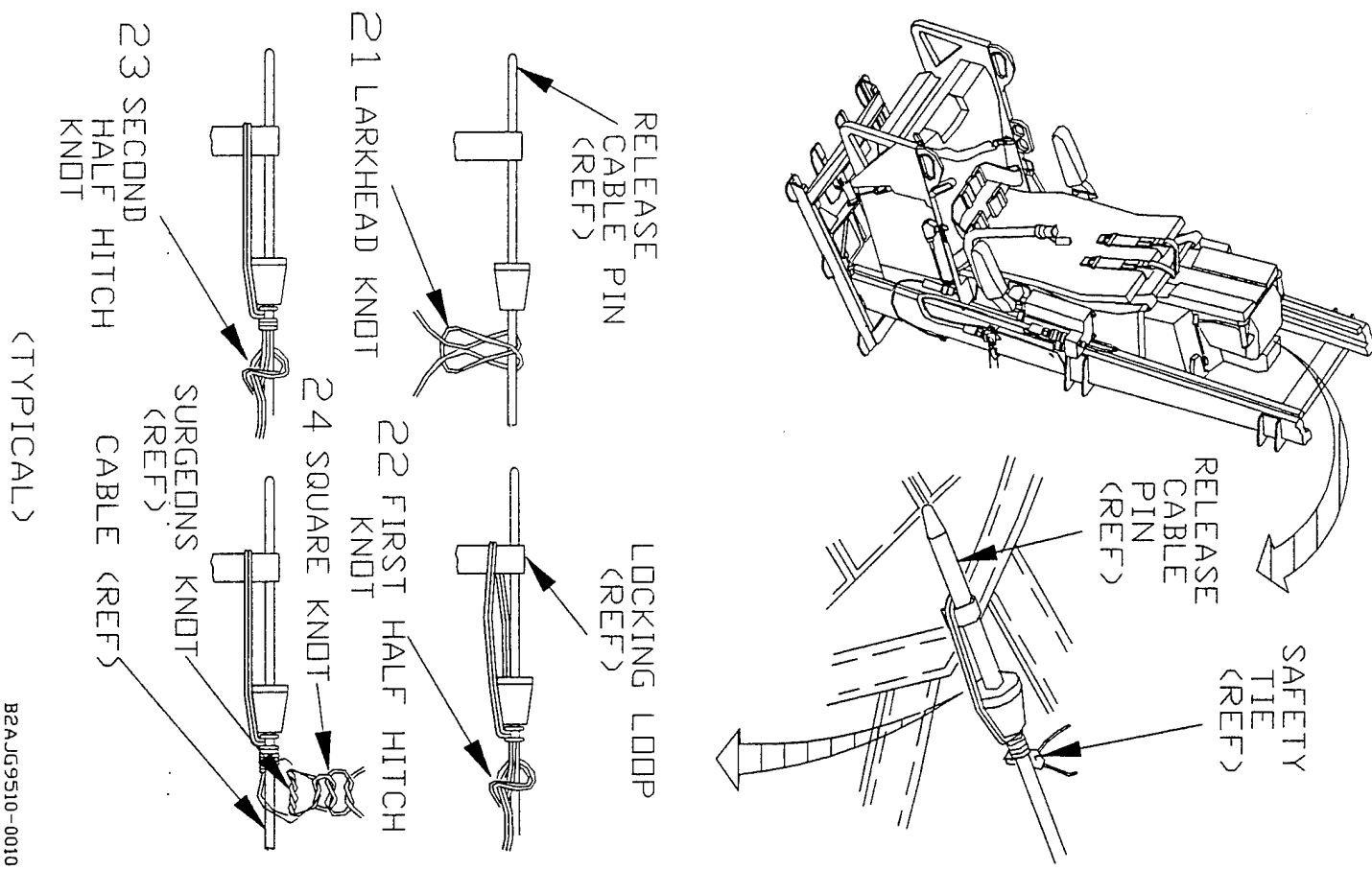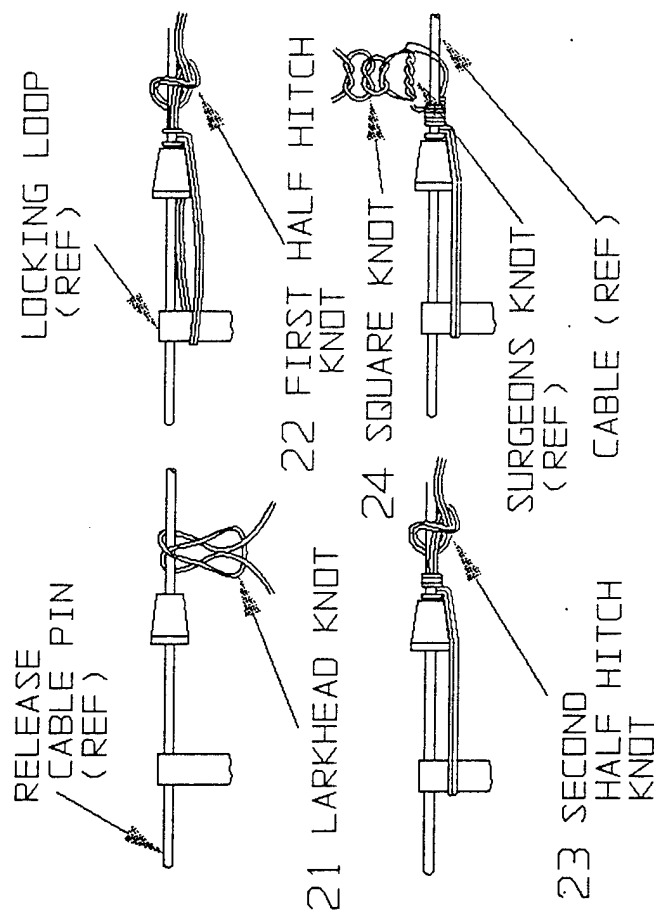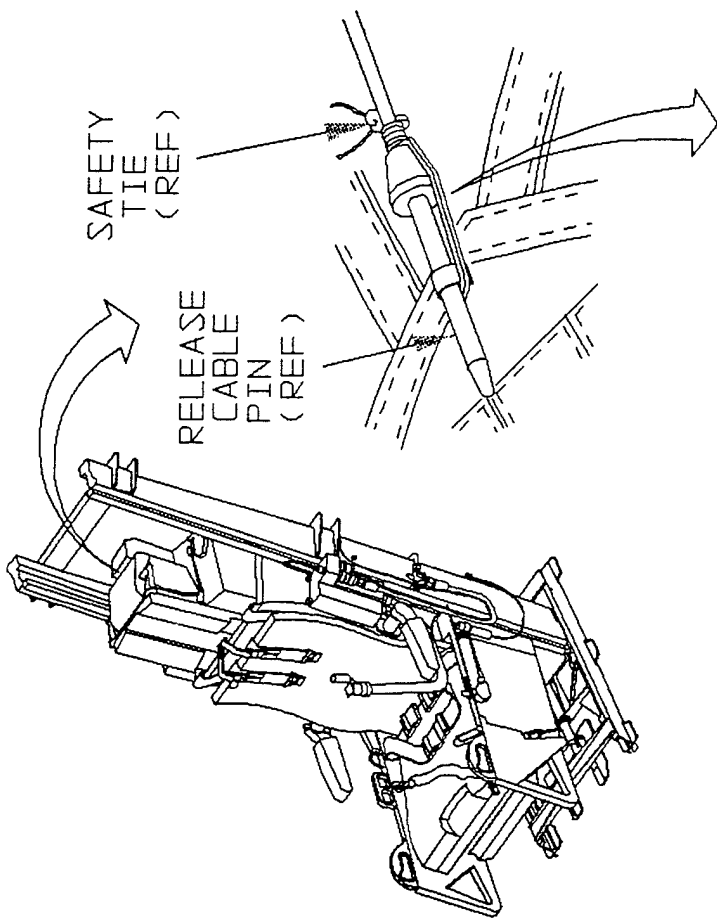A new view volume has been generated for the view with:

XMIN (%lf), XMAX (%lf),
YMIN (%lf), YMAX (%lf),
ZMIN (%lf), ZMAX (%lf).

Status: 0
Warning: 2223
Error: 0
Fatal: 0

10.1.3 Output AutoCAD R1₂
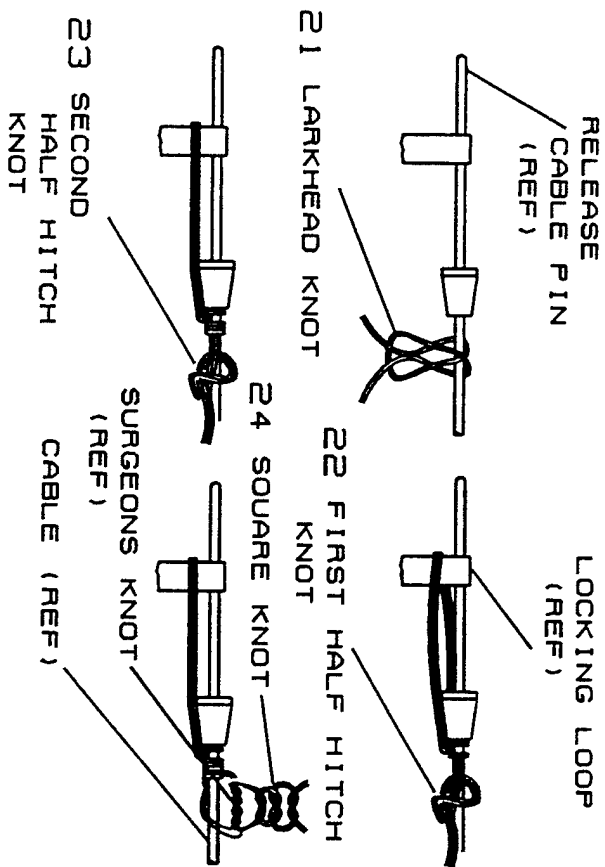
10.1.4 Output Cadkey v5.02

10.1.5 Output CheckMark v1.00
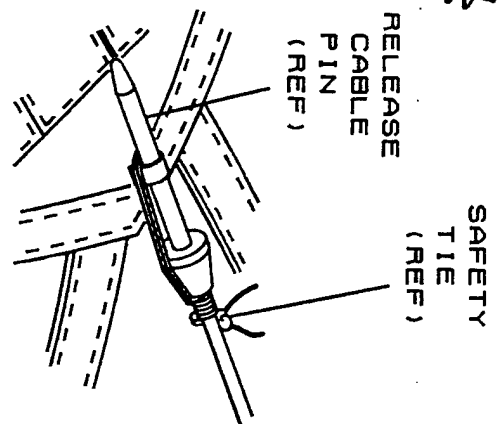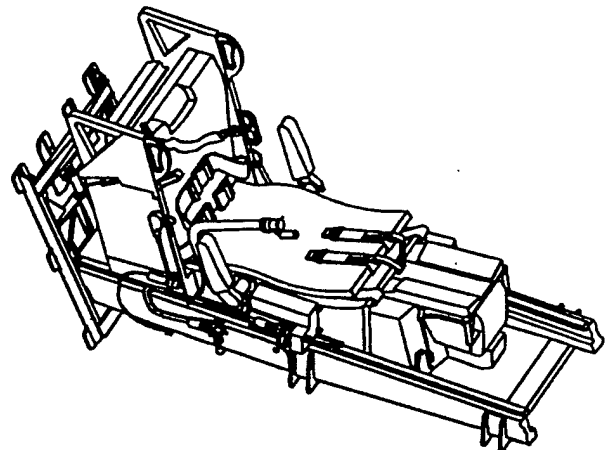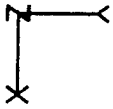
10.1.6 Output IGESView
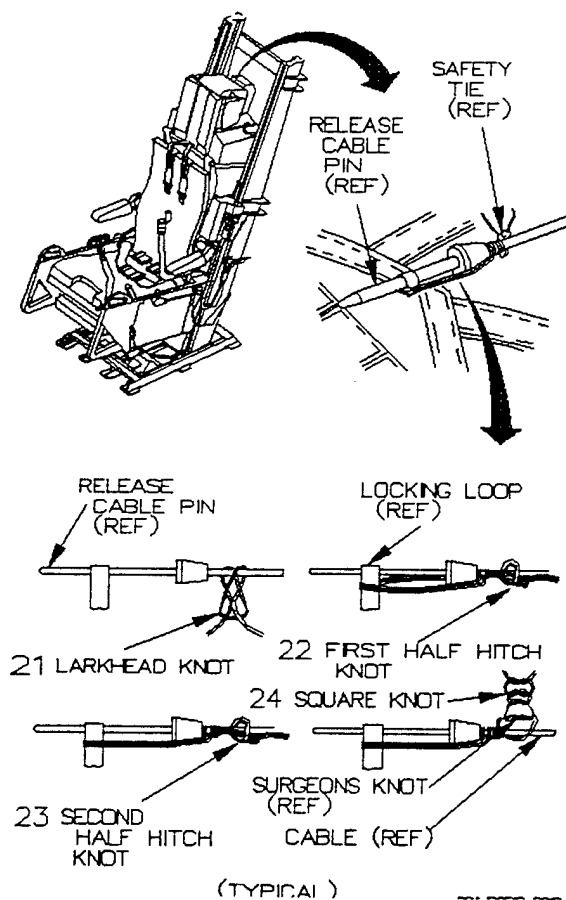
10.1.7 Output IGESWorks

10.1.8 Output Preview

SAFETY
TIE
(REF)

RELEASE
CABLE
PIN
(REF)

RELEASE
CABLE PIN
(REF)

LOCKING LOOP
(REF)

21 LARKHEAD KNOT

22 FIRST HALF HITCH
KNOT

24 SQUARE KNOT

23 SECOND
HALF HITCH
KNOT

SURGEONS KNOT
(REF)

CABLE (REF)

(TYPICAL)

B2AJG9510-0010
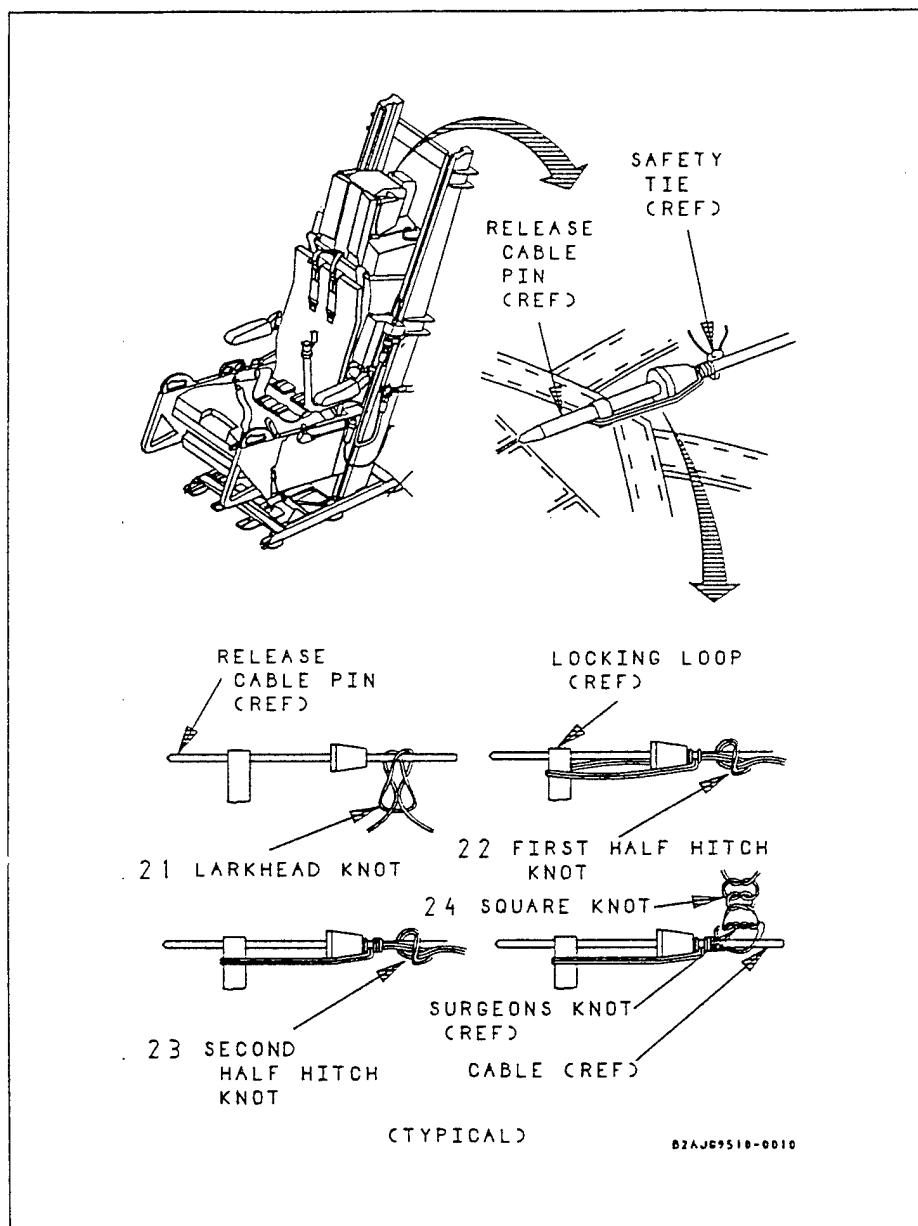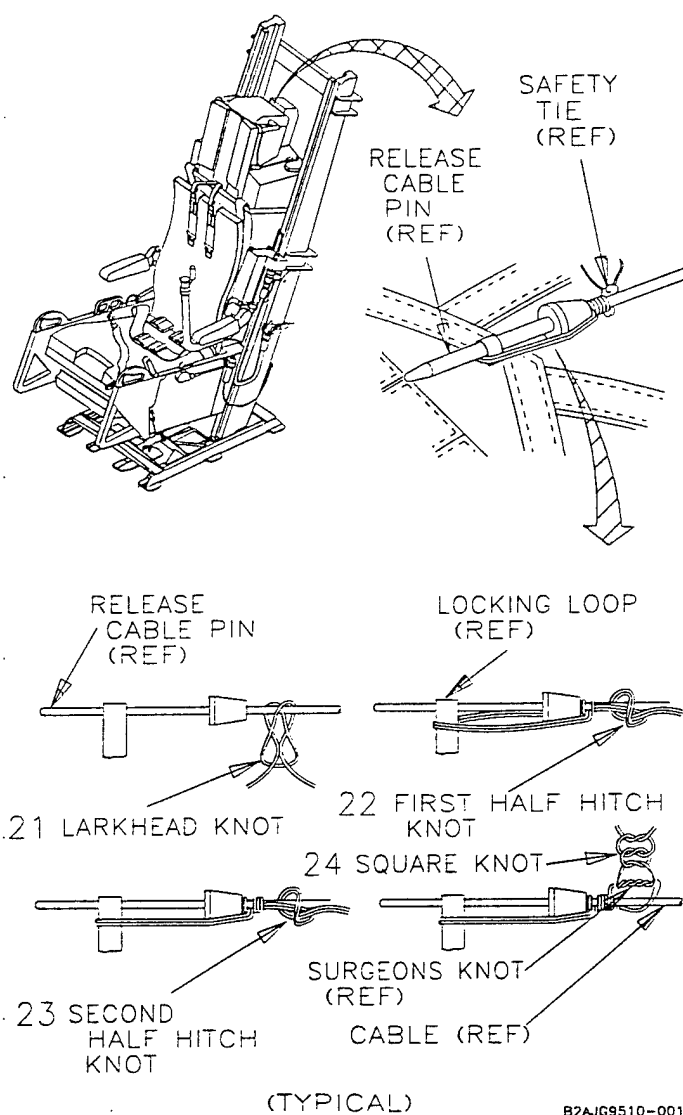
10.1.9 Output Wiz Worx IGESDRAW

\9313\D001Q008

Thu 25-Feb-93 12:21:08 - LJGRAFIX™ Version 4.1 - © 1992 by WIZ WORX (DAHarrod)
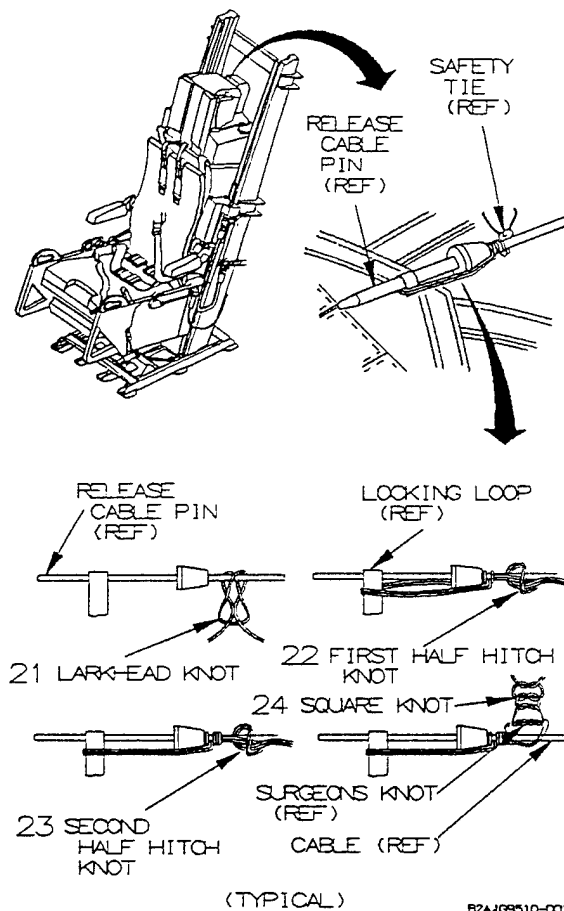
10.2   File D001Q018

10.2.1   Parser/Verifier Log

```
        *** IGES DATA FILE ANALYSIS ***
    ***          MARCH 1992          ***
    ***    IGES Data Analysis        ***
    ***        (708) 449-3430        ***


 Input file is \Tapetool\set003\d001\d001q018.igs


 Checking conformance to CALS Class I (MIL-D-28000A 2/10/92)


 Today is February 24, 1993  12:14 AM

*** File and Product Name Information ***

    File name from sender    = '0033.gef.igs'
    File creation Date.Time   = '930213.060302'
    Model change Date.Time    = ''
    Author                    = 'NORTHROP B2 ITDS CTB'
    Department                = ''
    Product name from sender = '0033.gef.igs'
    Destination product name = '0033.gef.igs'

*** Parameter Delimiters ***

    Delimiter  = ','
    Terminator = ';'

*** Originating System Data ***

    System ID               = 'ITDS CONVERTER: GEF_IGES'
    Preprocessor version  = '1.0'
    Specification version = 6 (IGES 4.0)

*** Precision levels ***
    Integer bits =     32
    Floating point   -  Exponent =     38  Mantissa =      6
    Double precision - Exponent =    308  Mantissa =     15

*** Global Model Data ***

    Model scale             = 1.0000E+000
    Unit flag               = 1
```

```
    Units                    =  'IN'
    Line weights             =  1
    Maximum line thickness   =  6.300000E-003
    Minimum line thickness   =  6.300000E-003
CAUTION 2317: Maximum line thickness equal to minimum thickness.
    Granularity              =  1.000000E-003
    Maximum coordinate       =  7.243750E+000
```

Drafting standard applicable to original data is not specified.

*** Status Flag Summary ***

```
Blank status: Visible                          4176
              Blanked                             0


Independence: Independent                      4158
              Physically Subordinate             14
              Logically Subordinate               4
              Totally Subordinate                 0


Entity use:   Geometry                         4143
              Annotation                         33
              Definition                          0
              Other                               0
              Logical/Positional                  0
              2D parametric                       0
              Not Specified                       0


Hierarchy:    Structure DE applies                0
              Subordinate DE applies           4176
              Hierarchy property applies          0
              Not Specified                       0
```

*** Entity Occurrence Counts ***

Entity	Form	Level	Count	Type
100	0	0	44	Circular arc
104	1	0	873	Conic arc - ellipse
106	63	0	14	Simple closed planar curve
110	0	0	2125	Line
112	0	0	211	Parametric spline curve
124	0	0	873	Transformation matrix
212	0	0	17	General note
230	0	0	14	Sectioned area (Standard Crosshatching)

404	0	0	1	Drawing
406	16	0	1	Property - Drawing size
406	18	0	2	Property - Intercharacter spacing
410	0	0	1	View - Orthographic parallel

*** Entity Count by Level ***

Level   Count
   0   4176

*** Labeling Information ***

0% of the entities are labeled.

Unlabeled   4176

*** Line Fonts Used in Data ***

100	102	104	106	108	110	112	114	
-	-	-	-	-	-	-	-	Undefined
44	-	871	14	-	2122	211	-	Solid
-	-	-	-	-	-	-	-	Dashed
-	-	2	-	-	3	-	-	Phantom
-	-	-	-	-	-	-	-	Center-line
-	-	-	-	-	-	-	-	Dotted
-	-	-	-	-	-	-	-	User defined

116	118	120	122	124	125	126	128	
-	-	-	-	873	-	-	-	Undefined
-	-	-	-	-	-	-	-	Solid
-	-	-	-	-	-	-	-	Dashed
-	-	-	-	-	-	-	-	Phantom
-	-	-	-	-	-	-	-	Center-line
-	-	-	-	-	-	-	-	Dotted
-	-	-	-	-	-	-	-	User defined

130	132	134	136	138	140	142	144	
-	-	-	-	-	-	-	-	Undefined
-	-	-	-	-	-	-	-	Solid
-	-	-	-	-	-	-	-	Dashed
-	-	-	-	-	-	-	-	Phantom
-	-	-	-	-	-	-	-	Center-line
-	-	-	-	-	-	-	-	Dotted

```
    -    -    -    -    -    -    -    -   User defined
```

*** Line Widths Used in Data ***

Weight	Count	Width
Defaulted	4176	(0.0063)

*** Colors Used in Data ***

Defaulted	878
Cyan	31
White	3267


```
*******************************
******  ENTITY ANALYSIS  ******
*******************************
```

*** Entity type: 100

*** Entity type: 104

WARNING 2265: Start point off conic by 6.531045E-003 at D   403.
WARNING 2039: End point off conic by 6.531045E-003 at D   403.

                     <<<<< *PART OF LOG REMOVED HERE* >>>>>

*** Entity type: 106

*** Entity type: 110

  -- 2125 lines averaging 7.080547E-002 units --

*** Entity type: 112

WARNING 2238: Polynomial segment (2) at D   639 is degenerate.
WARNING 2238: Polynomial segment (0) at D   685 is degenerate.
WARNING 2238: Polynomial segment (0) at D   3135 is degenerate.
WARNING 2238: Messages regarding degenerate polynomial segment suppressed.

*** Entity type: 124

873 transformation matrices, 873 non-zero translations.

NOTE   2341: 873 matrices contain translation information.

*** Entity type: 212

      17 text strings in data file.
      Average text aspect ratio in file is 0.9583008.
      Minimum text aspect ratio in file is 0.8928572.
      Maximum text aspect ratio in file is 0.9928573.

      FONTS USED IN FILE

      FONT   COUNT   NAME

         1   14   Default ASCII Style
      1002   3   Symbol Font 2

*** Entity type: 230

*** Entity type: 404

Drawing at D   5 contains 1 views.
Drawing at D   5 contains 0 annotation entities.

*** Entity type: 406

*** Entity type: 410

  Scale of view at D   1 is 1.000000E+000.
Orthographic View entity at D   1 has 0 clipping planes specified.
    XMIN = Not Set   XMAX = Not Set
    YMIN = Not Set   YMAX = Not Set
    ZMIN = Not Set   ZMAX = Not Set

*** Message Summary ***

2015: 175 Mathematically incorrect definitions.
2018: 1 Problems with line weight/width display information.

*** Error Summary ***

      0 fatal errors
      0 severe errors
      0 errors
    175 warnings

1 cautions
0 nitpicks
1 notes

*** End of Analysis of \Tapetool\set003\d001\d001q018.igs ***

10.2.2 AutoCAD R5.1 IGES Translator Log

```
Title: IGESIN Journal (v5.1 Nov 05 1992)
=================================================================================
File: I:/9313/D001Q018.xli
Date: Wed, Feb 24, 1993
Time: 16:09:52
=================================================================================

Translator S/N:   117-10075750
Translating from IGES file:        I:/9313/D001Q018.IGS
          to AutoCAD Drawing:      I:\9313\D001Q018.dwg


=================================================================================

Options obtained from:   default settings

Curves Approximated to Tolerance of            0.01

Surfaces Approximated to Tolerance of          0.01

Text Font/Style mapping:
IGES Text font        Style Name        ACAD Font
        0               SYMBOL0           iges0
        1               STANDARD          txt
        2                 LEROY           txt
        3                FUTURA           txt
        6                COMP80           txt
       12               GOTHICE         gothice
       13               GOTHICI         gothici
       14               ROMANS           romans
       17               ROMANT           romant
       18               ROMAND           romand
       19                 OCR             txt
     1001               SYMBOL1         iges1001
     1002               SYMBOL2         iges1002
     1003               SYMBOL3         iges1003
     2001                KANJI          bigfont

IGES Linefont/AutoCAD Linetype mapping
IGES Line Font        AutoCAD linetype        Shape file
        0                 BYLAYER
        1               CONTINUOUS
        2                 DASHED             acad.lin
        3                 PHANTOM            acad.lin
        4                 CENTER             acad.lin
```

_____

                5   DOT   acad.lin

===

Parse phase

*** Warning (IEVM_RADII_NOT_EQUAL_100) ***
(DE 337, TF 100:0) Entity's radii are not equal. Start point radius:
3.0140280e-002. Terminate point radius: 3.0395499e-002.

Action taken: Start point moved 1.2760949e-004 units from -2.1992126e+000,
4.2706299e+000 to -2.1993252e+000, 4.2706899e+000.   Terminate point moved
1.2760949e-004 units from -2.2019043e+000, 4.2483277e+000 to -2.2017813e+000,
4.2483618e+000.

                    <<<<< *PART OF LOG FILE REMOVED HERE* >>>>>

*** Warning (IEVM_BAD_VECTOR_124) ***
(DE 373, TF 124:0) Entity has a column which is not a unit vector.

Action taken: Unitized all vectors.

*** Warning (IEVM_BAD_START_POINT_104) ***
(DE 375, TF 104:1) Entity's start point not on the conic. Value found was
-5.6777220e-002, -5.2177000e-004.

Action taken: Start point moved 3.7936541e-004 units, from -5.6777220e-002,
-5.2177000e-004 to -5.6397855e-002, -5.2177000e-004.

                    <<<<< *PART OF LOG REMOVED HERE* >>>>>

*** Warning (IEVM_BAD_CONTINUITY_112) ***
(DE 625, TF 112:0) Entity's Degree of Continuity, 0, is incorrectly specified.
Degree of Continuity calculated to be 2.

Action taken: Degree of Continuity set to 2.

*** Warning (IEVM_BAD_CONTINUITY_112) ***
(DE 627, TF 112:0) Entity's Degree of Continuity, 0, is incorrectly specified.
Degree of Continuity calculated to be 1.

Action taken: Degree of Continuity set to 1.

                    <<<<< *PART OF LOG REMOVED HERE* >>>>>

*** Warning (IEVM_SPLINE_DEGEN_112) ***
(DE 8153, TF 112:0) Entity is degenerate.

_____

<<<<< PART OF LOG REMOVED HERE >>>>>

==
Start Section:

CONFORMANCE:
  MIL-D-28000 Amendment1, 20 December 1988
  Technical Illustration Class I Subset

ILLUSTRATION IDENTIFIER:
  0033.gef.igs

Global Section:

Parameter Delimiter:	,
Record Delimiter:	;
Sending Product ID:	0033.gef.igs
File Name:	0033.gef.igs
System ID:	ITDS CONVERTER: GEF_IGES
Preprocessor Version:	1.0
Size of Integer:	32
Sgl. Precision Mag:	38
Sgl. Precision Sig:	6
Dbl. Precision Mag:	308
Dbl. Precision Sig:	15
Receiving Product ID:	0033.gef.igs
Model Space Scale:	1.000000
Unit Flag:	1
Unit String:	IN
# of Line Weights:	1
Maximum Line Width:	0.006300
Creation Date:	02/13/93 06:03:02
Minimum Resolution:	0.001000
Maximum Coordinate:	7.243750
Author:	NORTHROP B2 ITDS CTB
Organization:	
IGES Version Number:	6
Drafting Standard:	0

Entity Summary:

Type	Form	Description	Count
100	0	Circular Arc	44
104	1	Ellipse	873
106	63	Simple Closed Planar Curve	14

```
110        0    Line                                           2125
112        0    Parametric Spline Curve                         211
124        0    Transformation Matrix                           873
212        0    General Note (Simple)                            17
230        0    Section Area (Standard Fill)                     14
404        0    Drawing (form 0)                                  1
406       16    Property (Drawing Size)                           1
406       18    Property (Int-character Spacing)                  2
410        0    View                                             1
-------------------------------------------------------------------------
                                                  Total          4176
=========================================================================
```

Translation phase

Drawing Entity (404 Form 0) at DE 5, with
    name = ,
    size = 3.937500, 6.300000,
    units = IN,
was processed in the AutoCAD drawing file: I:\9313\D001Q018.dwg

*** Warning (ACAD_NEW_VIEW_VOLUME_GENERATED) ***
(DE: 1 TF: 410:0)
A new view volume has been generated for the view with:
 XMIN (-4.633847), XMAX (0.395706),
 YMIN (0.453257), YMAX (7.724631),
 ZMIN (-0.692367), ZMAX (0.692367).

IGES Entity Summary

Type	Form	Description	Count	Processed	Errors
100	0	Circular Arc	44	44	0
104	1	Ellipse	873	873	0
106	63	Simple Closed Planar Curve	26	26	0
110	0	Line	2125	2125	0
112	0	Parametric Spline Curve	211	192	19
212	0	General Note (Simple)	17	17	0
230	0	Section Area (Standard Fill)	14	14	0
404	0	Drawing (form 0)	1	1	0
406	16	Property (Drawing Size)	1	1	0
410	0	View	1	1	0
Totals			3313	3294	19

Unsupported IGES Entity Summary

Type	Form	Description	Count
406	18	Property (Int-character Spacing)	2
			2
Total			2

AutoCAD Entity Summary

Entity	Created	Errors
LINE	2891	0
TEXT	17	0
ARC	44	0
SOLID	2	0
INSERT	12	0
POLYLINE	393	0
BLOCK	12	0
Totals		
	3371	0

Error Summary:

The following message was issued 43 time(s)
Entity's radii are not equal. Start point radius: %.7e. Terminate point
radius: %.7e.

The following message was issued 869 time(s)
Entity's start point not on the conic. Value found was %.7e, %.7e.

The following message was issued 871 time(s)
Entity's End Point not on the conic. Value found was %.7e, %.7e.

The following message was issued 133 time(s)
Entity's Degree of Continuity, %d, is incorrectly specified. Degree of
Continuity calculated to be %d.

The following message was issued 19 time(s)
Entity is degenerate.

The following message was issued 799 time(s)
Entity has a column which is not a unit vector.

The following message was issued 1 time(s)
A new view volume has been generated for the view with:
 XMIN (%lf), XMAX (%lf),
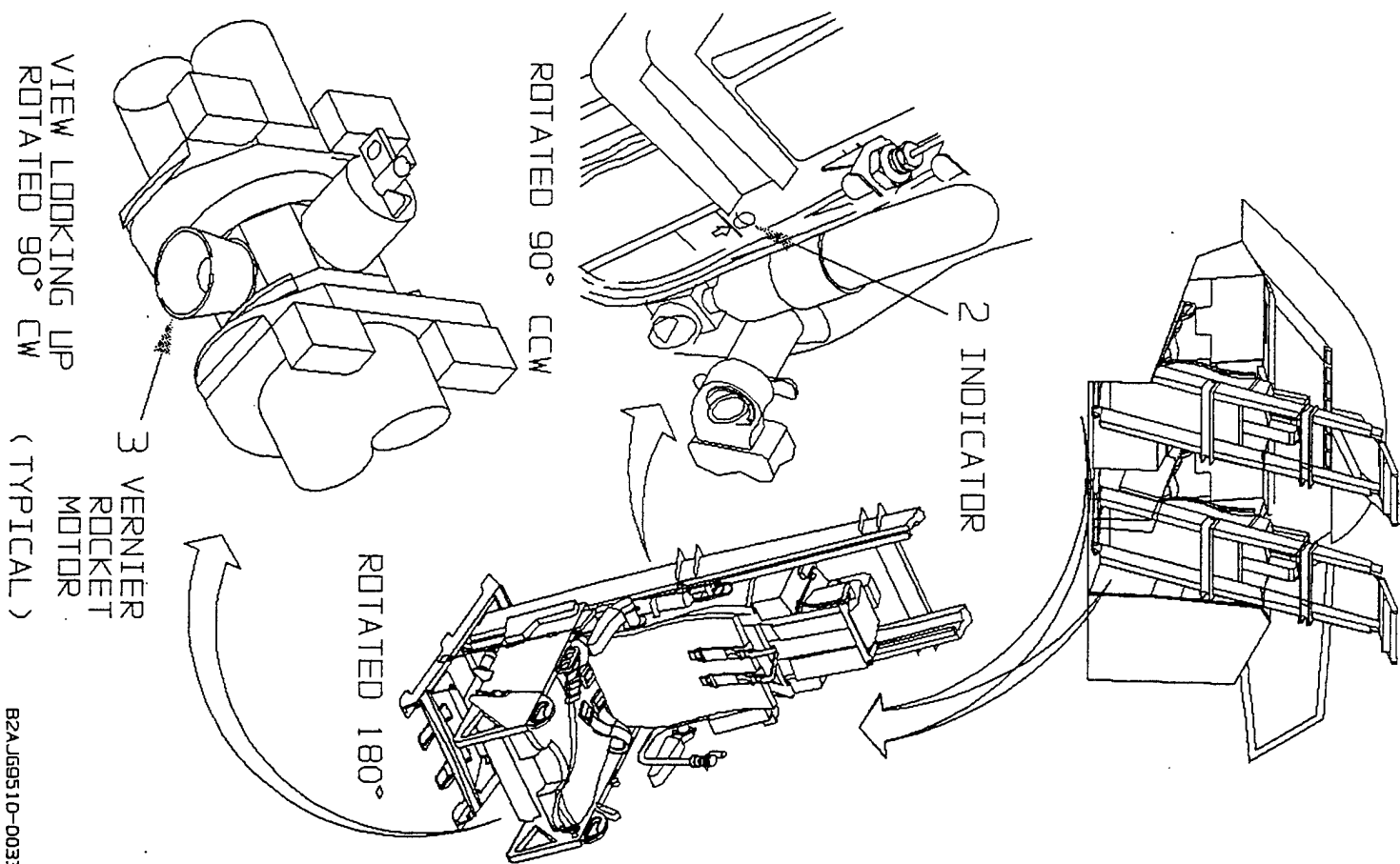
 YMIN (%lf), YMAX (%lf),
 ZMIN (%lf), ZMAX (%lf).

Status: 0
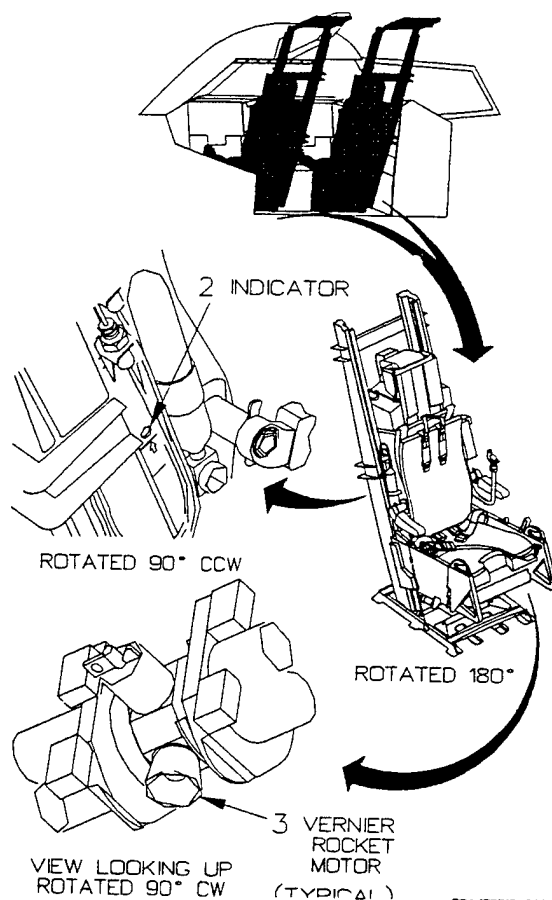Warning: 2735
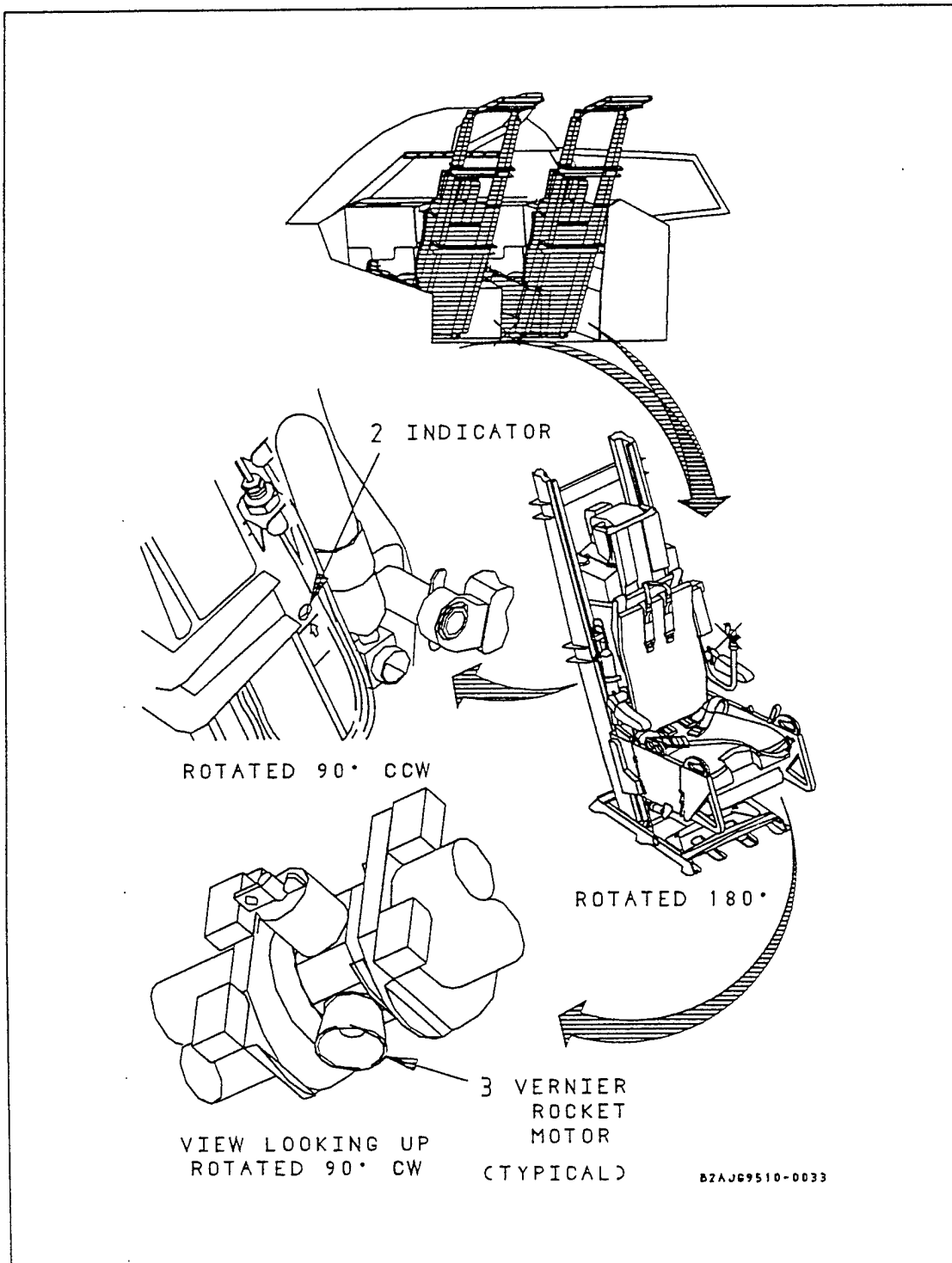Error: 0
Fatal: 0

10.2.3 Output AutoCAD R1₂

B2AJG9510-0033

ROTATED 180°
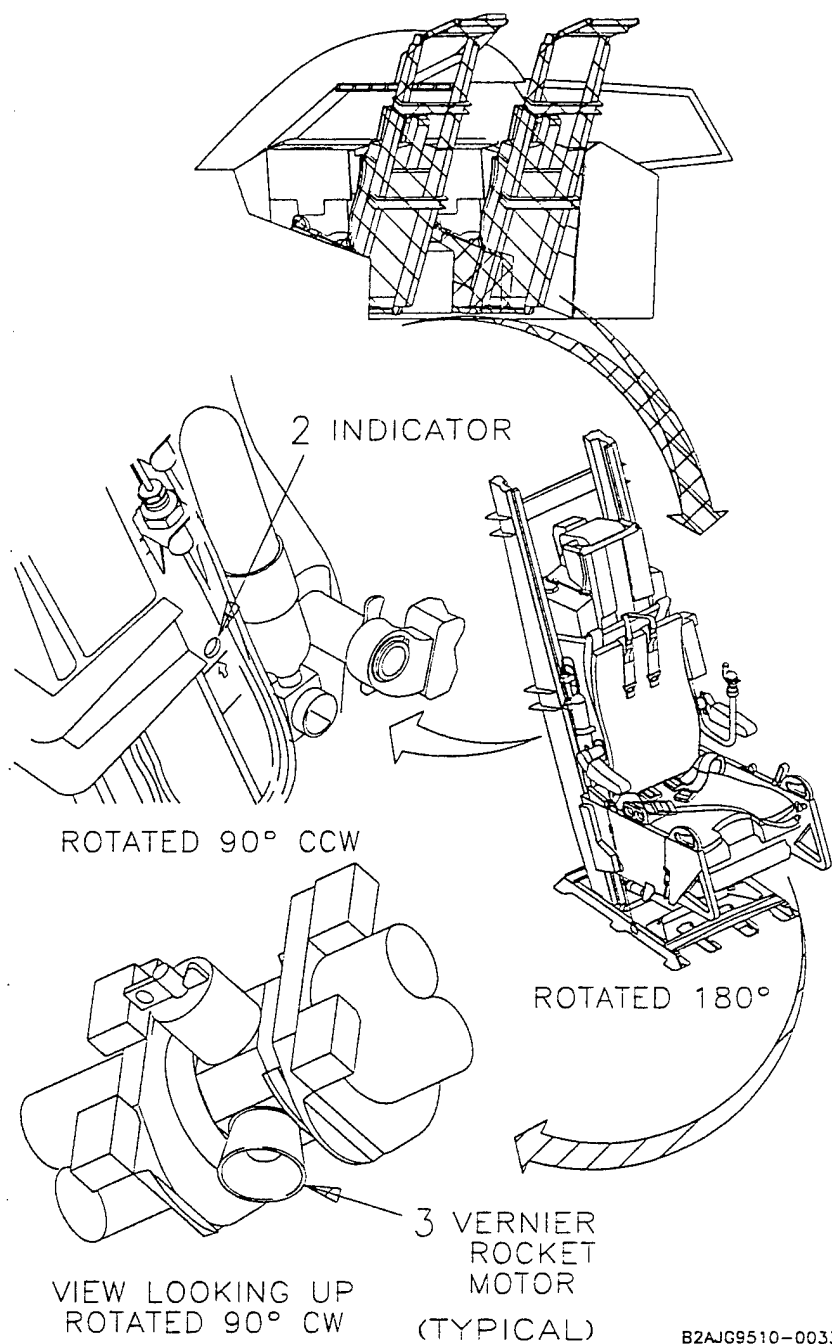
2 INDICATOR

ROTATED 90° CCW

3 VERNIER ROCKET MOTOR (TYPICAL)

VIEW LOOKING UP ROTATED 90° CW

10.2.4 Output Cadkey v5.02

VIEW LOOKING UP
ROTATED 90° CW

ROTATED 90° CCW

(TYPICAL)

3 VERNIER
ROCKET
MOTOR

2 INDICATOR

ROTATED 180°
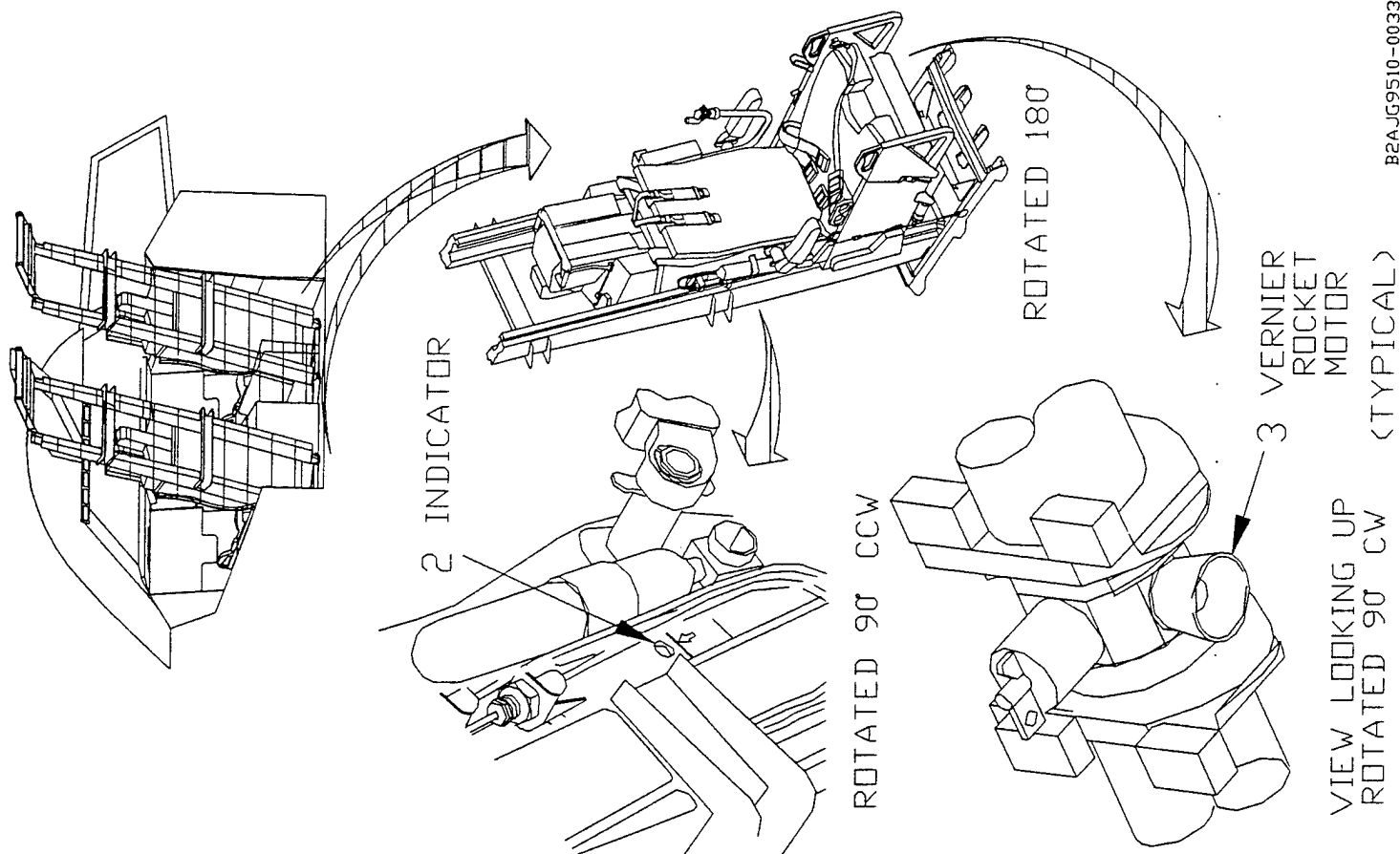
B2AJG9510-0033

10.2.5 Output IGESView

2 INDICATOR

ROTATED 90° CCW

ROTATED 180°

3 VERNIER
ROCKET
MOTOR
(TYPICAL)

VIEW LOOKING UP
ROTATED 90° CW

10.2.6 Output IGESWorks

10.2.7 Output Preview

2 INDICATOR

ROTATED 90° CCW

ROTATED 180°

3 VERNIER
ROCKET
MOTOR

VIEW LOOKING UP
ROTATED 90° CW

(TYPICAL)

B2AJG9510-0033

10.2.8 Output Wiz Worx IGESDRAW

\9313\D001Q018

2 INDICATOR

ROTATED 90° CCW

ROTATED 180°

VIEW LOOKING UP
ROTATED 90° CW   (TYPICAL)

3 VERNIER
ROCKET
MOTOR

B2AJ09510-0033

Thu 25-Feb-93 12:40:37 - LJGRAFIX™ Version 4.1 - © 1992 by WIZ WORX (DAHarrod)
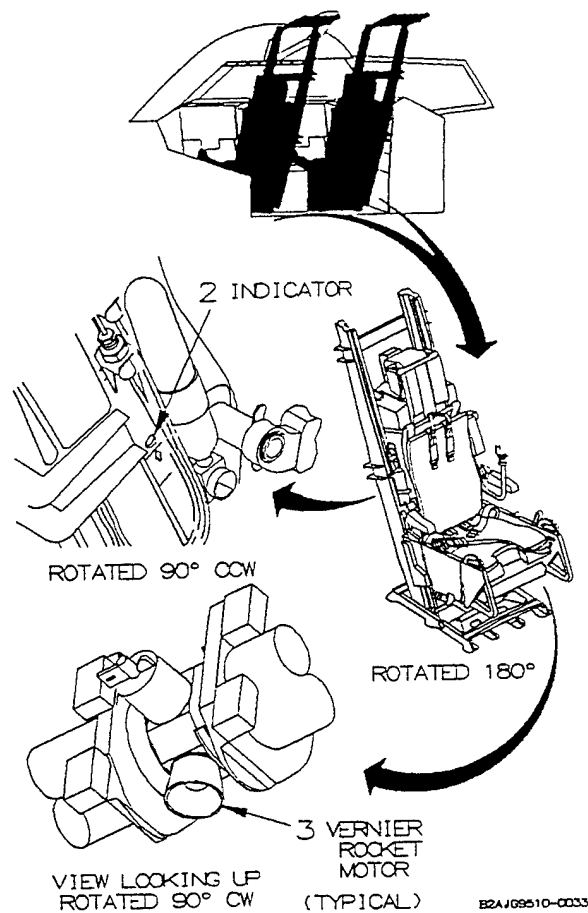
11. Appendix C - Detailed SGML Analysis

11.1 Datalogics Parser Log

```
            SGML Document Type Definition Parser
                      Version 3.36
        Copyright (c) Datalogics 1988, 1989, 1990, 1991
               An SGML System Conforming to
             International Standard ISO 8879
             Standard Generalized Markup Language


Log file: '9313.LOG'
SDO File: 'ctndecl.sdo'
Namecase General is yes.
Namecase Entity is no.
Parsing DTD file: '9313.dtd'


<!ENTITY B2AJG9510-0026
DTD0143: Attempt to declare general entity name 'B2AJG9510-0026'
         more than once denied.
         In declaration: '<!ENTITY'.
         In declaration: '<!DOCTYPE'.
         in line 40 in file '9313.dtd'
SYSTEM NDATA iges>


DTD0096: The generic ID ACCESSDRTAB has not been used in any content
         model, inclusion, or as a doctype element.
This DTD conforms to the ISO 8879 standard

DTO file '9313.DTO' created

closing statistics:
     Capacity points:                    90552
     Bytes of DTO file string space:   6981
     SGML descriptor blocks:            8193

Document Type Definition is compliant and parsed normally.

Program status code: 0.
```

```
IPA0108:          *** SGML Instance Parser Log File ***
Source Document File:  '9313.txt'.
Job File:              '9313.jbf'.
DTD File:              ''.
SGML Declaration File: ''.

Reading File '9313.jbf', File Type 'JOB FILE'.

     Concrete Syntax Settings In Effect For This Parse:
          NAMECASE GENERAL: YES.
          NAMECASE ENTITY:  NO.
          NAMELEN:          32.
          SHORTTAG:         YES.
Closed '9313.jbf', File Type 'JOB FILE'.
Reading File '9313.txt', File Type 'DIRECT INPUT FILE'.
   --> Scanned Up To Line 100 In 9313.txt.
   --> Scanned Up To Line 200 In 9313.txt.
   --> Scanned Up To Line 300 In 9313.txt.
   --> Scanned Up To Line 400 In 9313.txt.
   --> Scanned Up To Line 500 In 9313.txt.


                  <<<<< PART OF LOG REMOVED HERE >>>>>

   --> Scanned Up To Line 2900 In 9313.txt.
   --> Scanned Up To Line 3000 In 9313.txt.
   --> Scanned Up To Line 3100 In 9313.txt.
   --> Scanned Up To Line 3200 In 9313.txt.
   --> Scanned Up To Line 3300 In 9313.txt.
   --> Scanned Up To Line 3400 In 9313.txt.
Closed '9313.txt', File Type 'DIRECT INPUT FILE'.
Document Parsed Successfully, No Errors or Warnings.
```
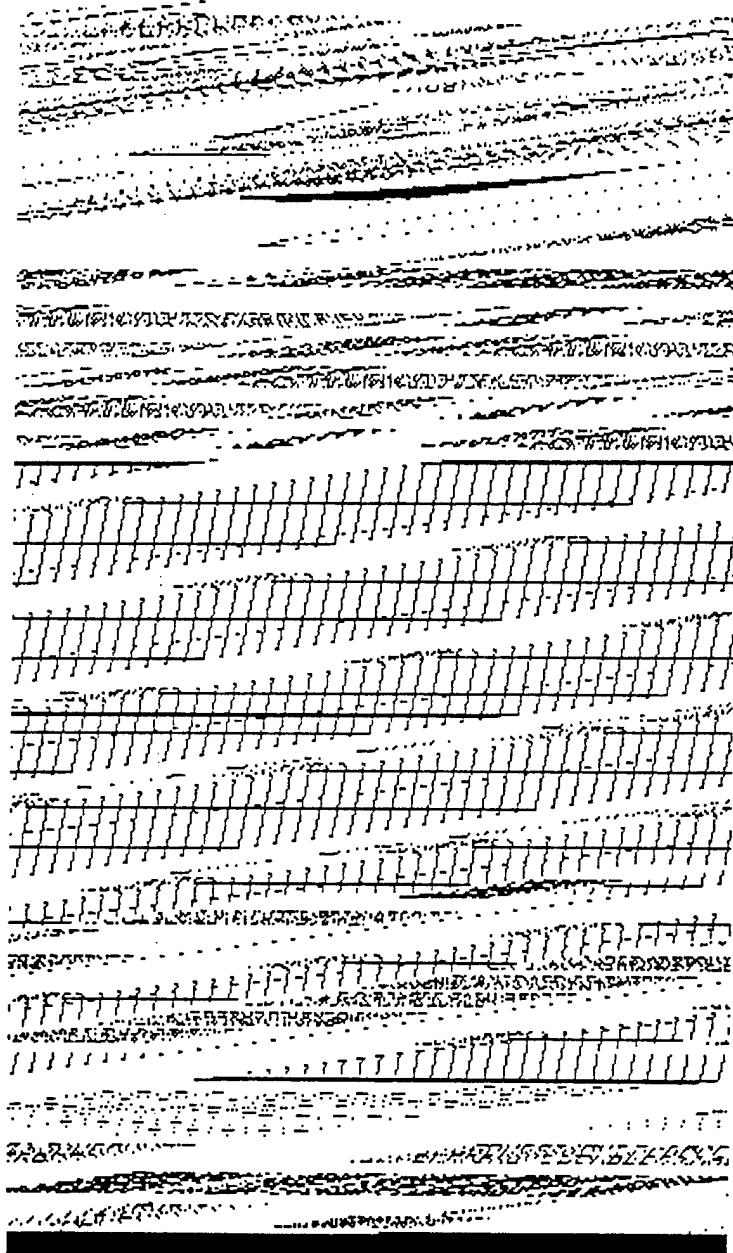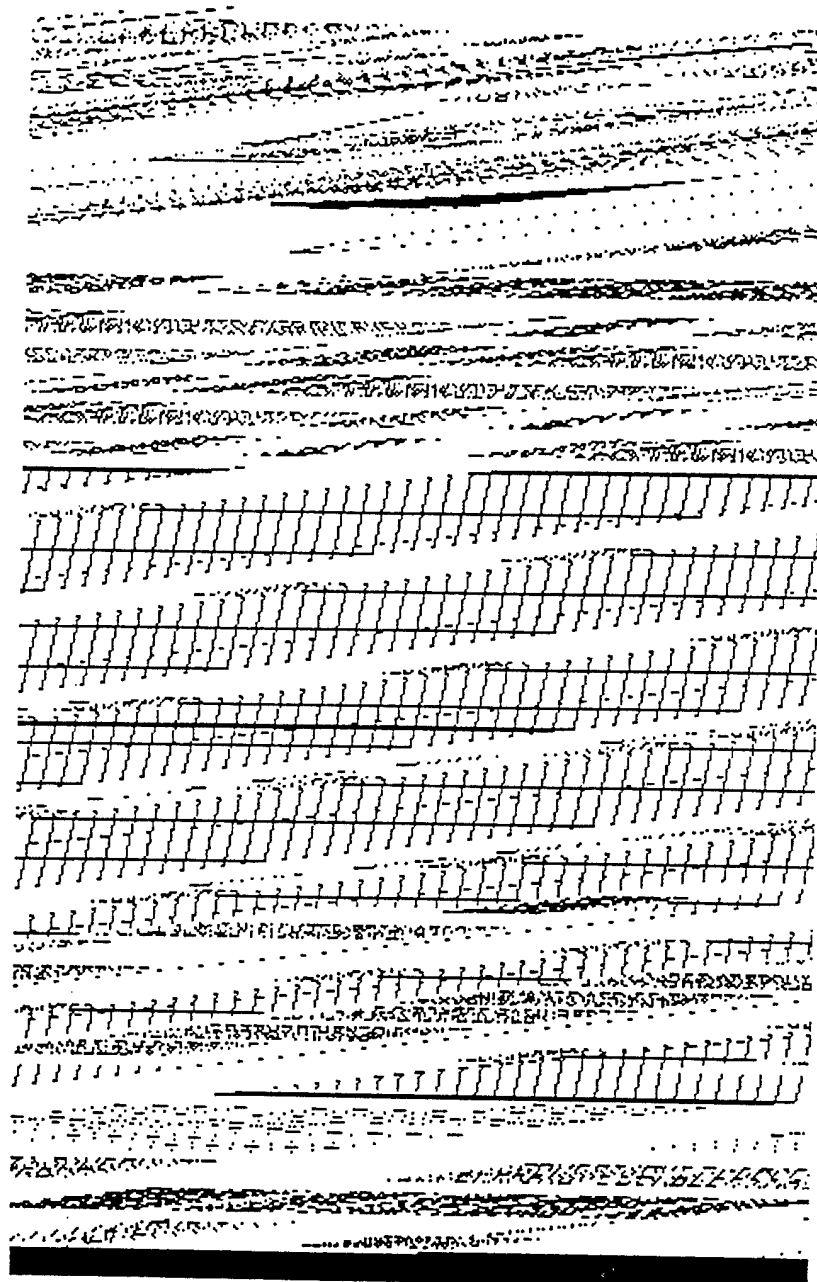
12.   Appendix D - Detailed Raster Analysis
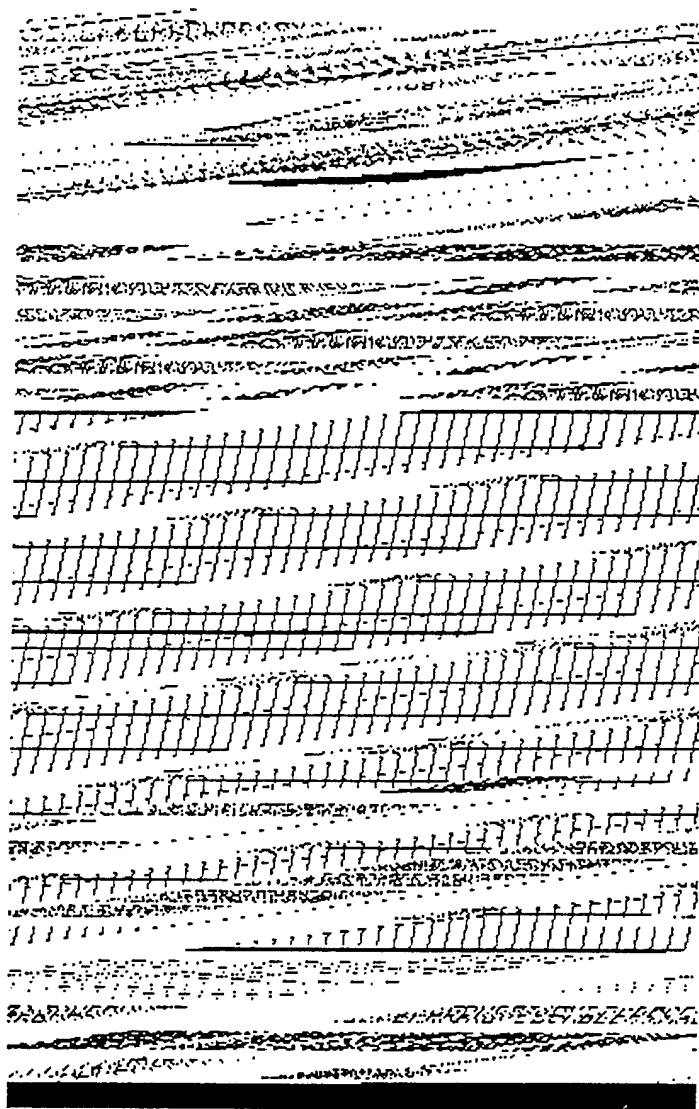
12.1   File D001R106

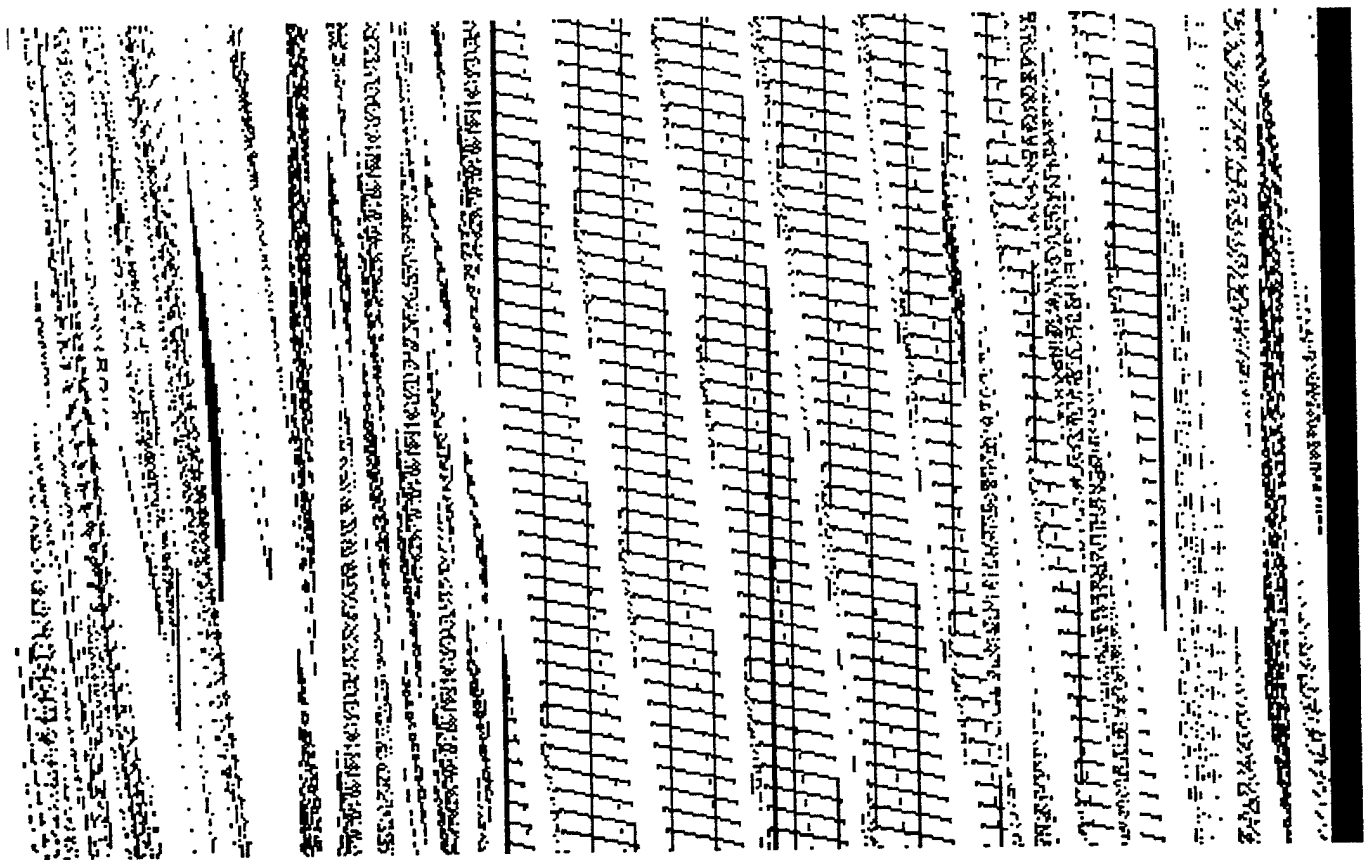### 12.1.1   Output g42tiff/IslandPaint

12.1.2 Output Preview

12.1.3 Output HiJaak/Ventura Publisher

12.1.4 Output HiJaak for Windows

13. Appendix E - Detailed CGM Analysis

13.1 File D001C105

13.1.1 Parser Log MetaCheck

```
MetaCheck Version 2.05 -- CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 02/24/93     Time:  15:27:31

Metafile Examined     : i:\9313\d001c105.cgm

Pictures Examined     : All
Elements Examined     : All
Bytes     Examined     : All


===================== Trace Report =====================

Tracing not selected.

============= CGM Conformance Violation Report =============

No Errors Detected

========== CALS CGM Profile (MIL-D-28003) Report ============

No profile discrepancies detected.

================ Conformance Summary Report =================

MetaCheck Version 2.05 -- CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-91 CGM Technology Software
Execution Date: 02/24/93     Time:  15:27:43

Name of CGM under test: i:\9313\d001c105.cgm
Encoding              : Binary

Pictures Examined     : All
Elements Examined     : All
Bytes     Examined     : All


BEGIN METAFILE string : "0009.cgm"
METAFILE DESCRIPTION   : "NORTHROP B2 ITDS GEF, MIL-D-28003/BASIC-1"
```

Picture 1 starts at octet offset 154; string contains: "Picture 1"

Private values encountered in CGM

Conformance Summary : This file conforms to the CGM specification.

                        This file meets the CALS CGM Profile (MIL-D-28003).

Summary of Testing Performed and Errors Found:

        1 Pictures Tested
     2381 Elements Tested
   126920 Octets Tested

        ====================================
        | No Errors Were Detected |
        ====================================

================ End of Conformance Report ==================

13.1.2   validcgm LOG

Analysis for file d001c105.cgm using table table
ERROR: illegal in this state (2), std B
ERROR: required precursor (0, 4) not yet seen
(14.1, 0)   (3, 6, 2)   Clip Indicator OFF
(0, 1) occurred 1 time
(0, 2) occurred 1 time
(0, 3) occurred 1 time
(0, 4) occurred 1 time
(0, 5) occurred 1 time
(1, 1) occurred 1 time
(1, 2) occurred 1 time
(1, 3) occurred 1 time
(1, 4) occurred 1 time
(1, 5) occurred 1 time
(1, 6) occurred 1 time
(1, 7) occurred 1 time
(1, 8) occurred 1 time
(1, 9) occurred 1 time
(1, 10) occurred 1 time
(1, 11) occurred 1 time
(1, 12) occurred 1 time
(1, 13) occurred 1 time
(2, 2) occurred 1 time

(2, 6) occurred 1 time
(2, 7) occurred 1 time
(3, 2) occurred 1 time
(3, 6) occurred 1 time
(3, 6) occurred illegally 1 time
(4, 1) occurred 1118 times
(4, 4) occurred 11 times
(4, 7) occurred 5 times
(4, 12) occurred 1 time
(4, 15) occurred 19 times
(4, 17) occurred 13 times
(4, 18) occurred 690 times
(5, 2) occurred 32 times
(5, 3) occurred 32 times
(5, 4) occurred 32 times
(5, 10) occurred 1 time
(5, 12) occurred 2 times
(5, 13) occurred 2 times
(5, 14) occurred 1 time
(5, 15) occurred 6 times
(5, 16) occurred 6 times
(5, 17) occurred 1 time
(5, 18) occurred 5 times
(5, 22) occurred 18 times
(5, 23) occurred 4 times
(5, 27) occurred 14 times
(5, 28) occurred 14 times
(5, 29) occurred 14 times
(5, 30) occurred 18 times
(5, 34) occurred 1 time

13.1.3 Output Harvard Graphics
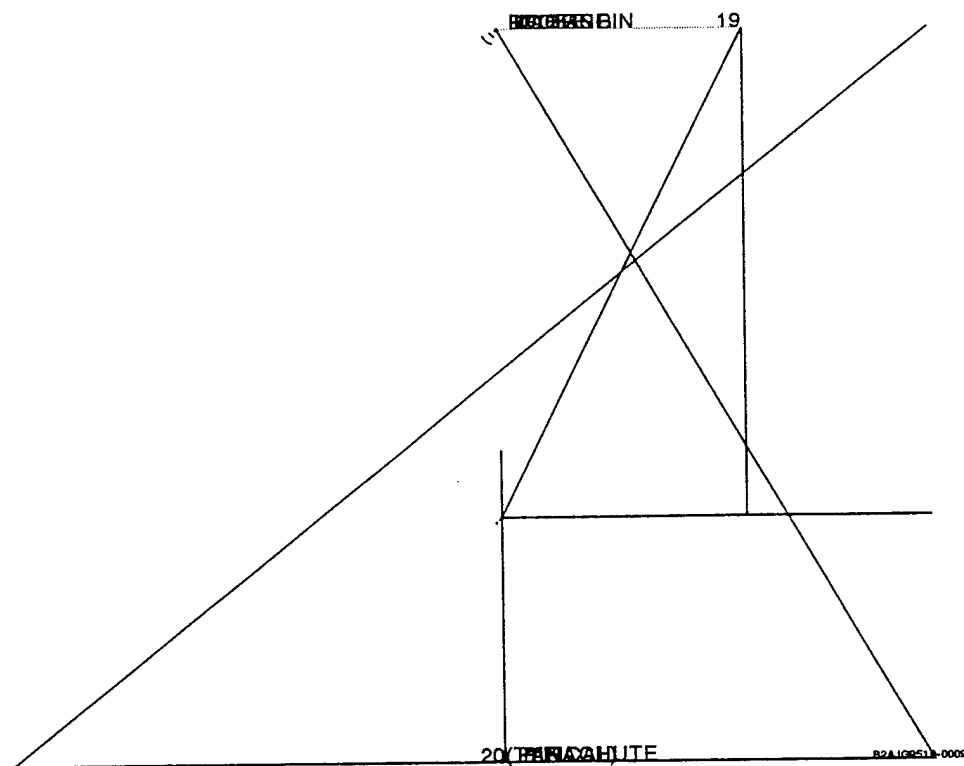
13.1.4 Output cgm2draw/IslandDraw